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FLEXLOGIX CONTROLLERS

SELECTION GUIDE

1794-L34

ALLEN-BRADLEY • ROCKWELL SOFTWARE

Rockwell Automation

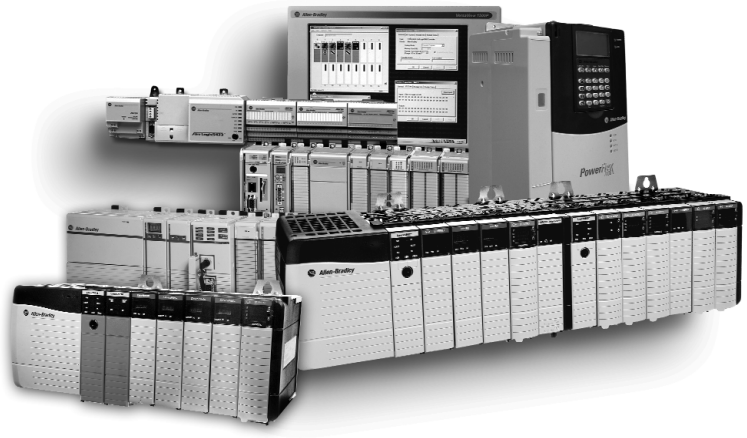
Logix Controllers Comparison

Common Characteristics	1756 ControlLogix	1756 GuardLogix	1768 CompactLogix	1769 CompactLogix	1789 SoftLogix5800	1794 FlexLogix	PowerFlex 700S2 with DriveLogix
Controller tasks: • Continuous • Periodic • Event	• 100 tasks • Event tasks: all event triggers	• 100 tasks • Event tasks: all event triggers	• 16 tasks • Event tasks: consumed tag, EVENT instruction, axis, and motion event triggers	• 1769-L35x: 8 tasks • 1769-L32x: 6 tasks • 1769-L31: 4 tasks • Event tasks: consumed tag and EVENT instruction triggers	• 100 tasks • Event tasks: all event triggers, plus outbound and Windows events	• 8 tasks • Event tasks: consumed tag and EVENT instruction triggers	• 8 tasks • Event tasks: axis and motion event triggers
User memory	1756-L55M12: 750 KB 1756-L55M13: 1.5 MB 1756-L55M14: 3.5 MB 1756-L55M16: 7.5 MB 1756-L55M22: 750 KB 1756-L55M23: 1. 5 MB 1756-L55M24: 3.5 MB 1756-L60M03SE: 750 KB 1756-L61: 2 MB 1756-L62: 4 MB 1756-L63: 8 MB 1756-L64: 16 MB	1756-L61S: 2 MB Standard 1 MB Safety 1756-L61S: 4 MB Standard 1 MB Safety	1768-L43: 2 MB	1769-L31: 512 KB 1769-L32x: 750 KB 1769-L35x: 1.5 MB	1789-L10: 2 MB; 3 slots; No motion 1789-L30: 64 MB; 5 slots 1789-L60: 64 MB; 16 slots	1794-L34: 512 KB	256 KB 768 KB with memory expansion
Nonvolatile user memory	1756-L55M12: none 1756-L55M13: none 1756-L55M14: none 1756-L55M16: none 1756-L55M22: yes 1756-L55M23: yes 1756-L55M24: yes 1756-L6x: CompactFlash	CompactFlash	CompactFlash	CompactFlash	None	Yes	Yes (expansion memory)
Built-in communication ports	1 port RS-232 serial	1 port RS-232 serial	1 port RS-232 serial	• 1769-L31: 2 RS-232 ports • 1769-L32C, -L35CR: 1 ControlNet port and 1 RS-232 serial port • 1769-L32E, -L35E: 1 EtherNet/IP port and 1 RS-232 serial port	Depends on personal computer	• 1 port RS-232 serial • 2 slots for 1788 communication cards	• 1 port RS-232 serial • 1 slot for 1788 communication cards
Communication options (these options have specific products and profiles for their platform - other options are available via third party products and generic profiles)	• EtherNet/IP • ControlNet • DeviceNet • Data Highway Plus • Remote I/O • SynchLink	• EtherNet/IP (standard and safety) • ControlNet (standard and safety) • DeviceNet (standard and safety) • Data Highway Plus • Remote I/O • SynchLink	• EtheNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet	• EtherNet/IP • ControlNet • DeviceNet
Serial port communications	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus	• ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus
Connections	• 100 ControlNet • 128 EtherNet/IP • 64 TCP/IP	• 48 ControlNet • 128 EtherNet/IP • 64 TCP/IP	• 48 ControlNet • 64 EtherNet/IP • 32 TCP/IP	• 32 ControlNet • 32 EtherNet/IP • 32 TCP/IP	• 48 ControlNet • EtherNet/IP limited by type/number cards	• 32 ControlNet • 32 EtherNet/IP • 64 TCP/IP	• 32 ControlNet • 32 EtherNet/IP • 64 TCP/IP
Controller redundancy	Full support	None	NA	NA	NA	Backup via DeviceNet	NA
Simple motion	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive	• Stepper • Servo via DeviceNet • Analog ac drive
Integrated motion	SERCOS interface Analog options: • Encoder input • LDT input • SSI input	SERCOS interface Analog options: • Encoder input • LDT input • SSI input	SERCOS interface	NA	SERCOS interface Analog options: • Encoder input • LDT input • SSI input	NA	• 1 full servo • 1 feedback axis
Programming languages	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC • External routines (developed in C/C++)	• Relay ladder • Structured text • Function block • SFC	• Relay ladder • Structured text • Function block • SFC

Logix Platforms

Allen-Bradley Logix platforms provide a single integrated-control architecture for discrete, drives, motion, process, and safety control.

The Logix platforms provide a common control engine, programming software environment, and communication support across multiple hardware platforms. All Logix controllers operate with a multitasking, multiprocessing operating system and support the same set of instructions in multiple programming languages. One RSLogix 5000 programming-software package programs all Logix controllers. And, as part of the Integrated Architecture, all Logix controllers offer the benefits of the Common Industrial Protocol (CIP) to communicate via EtherNet/IP, ControlNet, and DeviceNet networks.



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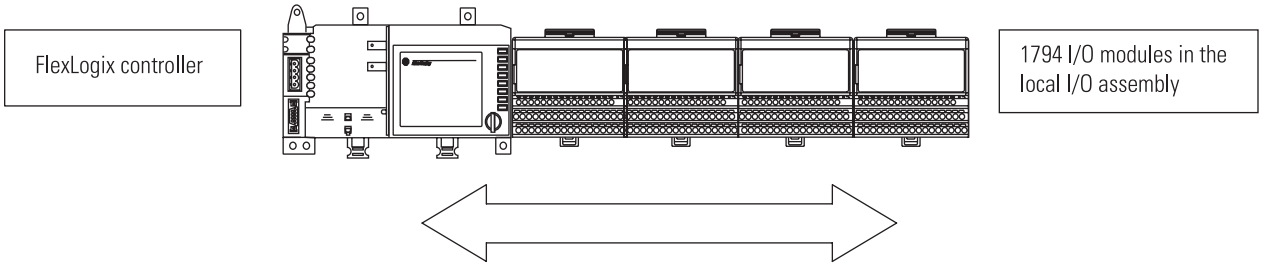
FlexLogix System Overview

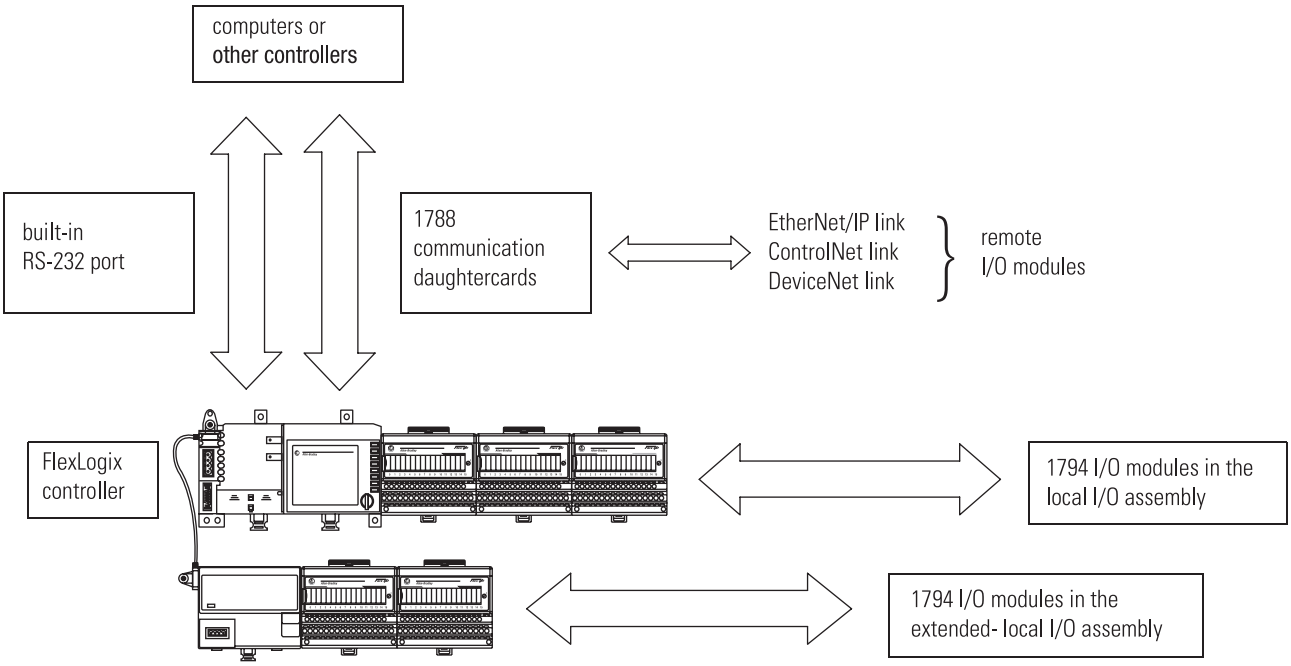
A FlexLogix system provides a multi-purpose programmable controller. You can distribute I/O to locations close to sensors/actuators. Connect multiple FlexLogix controllers in networks for distributed processing.

Because it has a Logix control engine, a FlexLogix controller supports the Logix instruction set, tasking model, and data model. A FlexLogix controller and other Logix controllers have a common approach to programming and configuring I/O with RSLogix 5000 programming software. The 1794 I/O products offer a range of digital and analog I/O (including intelligent I/O) in a rugged modular assembly.

A simple FlexLogix system can consist of a single, stand-alone assembly with one controller and as many as eight I/O modules.



In a more complex FlexLogix system, use multiple controllers across networks. Distribute the I/O platforms over multiple I/O links.



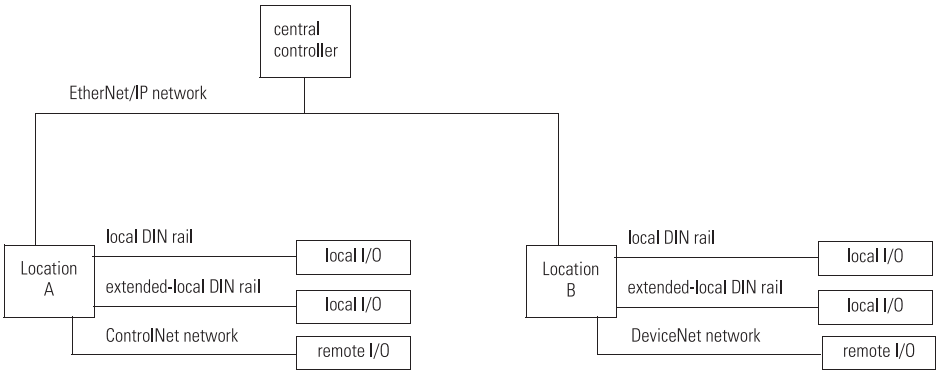
Lay Out the System

Lay out the system by determining the network configuration and the placement of components in each location. Decide at this time whether each location will have its own controller.

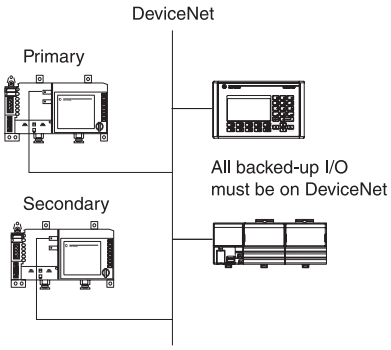
If you use multiple FlexLogix systems, use a central controller, such as a ControlLogix controller, to coordinate the FlexLogix controllers. If the FlexLogix controller uses remote I/O, place it on its own network. If you plan to share I/O, make sure the I/O is on a network that each controller can access locally.

Each FlexLogix controller can support:

- 8 local I/O modules.
- 8 extended-local I/O modules.
- 32 connections per communication card over a ControlNet or an EtherNet/IP network (two communication cards per controller maximum).
- 496 input bytes and 492 output bytes over a DeviceNet network.



Layout a FlexLogix Backup System



FlexLogix backup on a DeviceNet network is a simple, low-cost, backup system targeted towards smaller applications that require fast switchovers from a primary to a secondary controller. FlexLogix backup is faster that a software-implemented switchover and lower cost than ControlLogix redundancy.

FlexLogix backup is suited for RTU (remote terminal unit) and power generation applications. It is also suited for small process applications where environmental control is critical.

Requires:

- RSLogix 5000 software must be version 10 or later and FlexLogix firmware must be revision 10 or later.
- The primary controller and the secondary controller each need their own 1788-DNBO scanner. The 178-DNBO firmware must be at revision 2.*x* or higher.
- The DeviceNet network should be set up with both the primary and secondary 1788-DNBO node addresses set to 0.
- All the I/O and operator interface devices that require backup must be on the DeviceNet network.

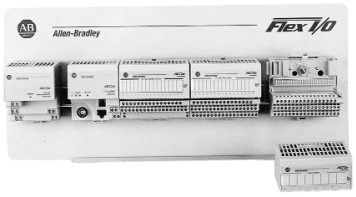
Specify a System

Follow these steps as you specify your FlexLogix system.

✓	Step	See	
	1 Select I/O devices. Use a spreadsheet to record the: • location of the device. • number of points needed. • appropriate catalog number. • number of points available per module. • number of modules.	I/O module specifications Place I/O modules Isolate FLEX Ex I/O modules	page 5 page 12 page 12
	2 Select communication modules. Add the number of communication modules to the I/O spreadsheet.	Network overview EtherNet/IP specifications ControlNet specifications DeviceNet specifications Serial specifications DH-485 specifications	page 13 page 15 page 16 page 17 page 18 page 20
	3 Select controllers. Select the appropriate controller based on the: • required controller tasks. • number of I/O points needed. • number of communication cards needed. • required controller memory.	Controller specifications Control distributed I/O Communicate with display devices Communicate with controllers Communicating with other devices	page 21 page 22 page 22 page 23 page 23
	4 Select power supplies. Calculate power requirements on the I/O spreadsheet.	Power supply specifications	page 25
	5 Select the number of DIN rails. Determine whether to panel mount or DIN rail mount the system.	Plan the DIN rails	page 27
	6 Select software. Determine the software products you need to configure and program your application. Based on the system design, determine the software products you need.	Available software products Programming software Communication software Network configuration software Emulate software	page 29 page 30 page 32 page 34 page 36

Step 1 - Select:

- *I/O modules*
- *Terminal bases*
- *Extender cables*
- *1794-FLA adapter for an extended-local rail, if needed*
- *1797-BIC and 1797-CEC, if using FLEX Ex I/O modules*



1794 FLEX and 1797 FLEX Ex I/O Modules

The FlexLogix controller adds control to the flexible, low-cost, modular FLEX I/O system. Use FlexLogix controllers to meet the needs of your distributed and stand-alone applications.

When planning I/O communications, consider:

- which FLEX I/O modules to use.
- where to place FLEX I/O modules.
- how FLEX I/O modules operate.

The FlexLogix controller supports FLEX and FLEX Ex I/O modules. FLEX and FLEX Ex I/O modules are packaged I/O modules that plug into terminal bases. The terminal base makes the backplane and provides the terminal connection points for wiring the I/O module.

This family of I/O modules	Provides
FLEX I/O	FLEX I/O builds an I/O interface onto a terminal strip. Use the terminal strip on the terminal base to wire field devices directly.
FLEX Ex I/O	FLEX Ex adds galvanic isolation to the modularity of FLEX I/O. Dual-fault, intrinsically-safe circuits let you install I/O or connect to field devices in a hazardous area while maintaining a high degree of safety.

Important: If you use FLEX Ex I/O modules, only connect the intrinsically-safe I/O modules to other intrinsically-safe apparatus to maintain the integrity of the intrinsically-safe system.

Do not mix regular FLEX I/O and FLEX Ex I/O on the same ControlNet network segment. You must separate the modules on different ControlNet segments using either a fiber hub (1786-RPA, 1786-RPFM and 1797-RPA, 1797-RPFM) or a ControlNet coax barrier (1797-BCNR).

You can connect FLEX Ex modules only on the local rail (not the extended-local rail) of a FlexLogix system using a 1797-BIC and 1797-CEC module pair.

1794 FLEX Digital I/O Modules

1794 FLEX Digital ac Input Modules

Cat. No.	Number of Inputs	Voltage, On-State Input, Nom.	Operating Voltage Range	Default Signal Delay	Current, Off-State Input, Max.	Terminal Base Unit✶	FLEXBus Current (mA)	Power Dissipation, Max.
1794-IA8	8	120V ac	85...132V ac	on = 8.6 ms off = 26.6 ms‡	2.9 mA	**1794-TBN,** 1794-TB2, 1794-TB3, 1794-TB3S	30 mA	4.5 W @ 132V ac
1794-IA8I	8 individually isolated	120V ac	85...132V ac	on = 8.6 ms off = 26.6 ms‡	2.9 mA	**1794-TBN,** 1794-TB2, 1794-TB3, 1794-TB3S	30 mA	4.5 W @ 132V ac
1794-IA8K	8 conformally coated	120V ac	85...132V ac	on = 8.6 ms off = 26.6 ms‡	2.9 mA	**1794-TBN**, 1794-TB2, 1794-TB3, 1794-TB3S	30 mA	4.5 W @ 132V ac
1794-IA16	16	120V ac	74...132V ac	on = 7.5 ms off = 26.5 ms§	2.9 mA	**1794-TB3,** 1794-TB3S, 1794-TBN❄	20 mA	6.4 W @ 132V ac
1794-IM8	8	220V ac	159...264V ac	on = 7.5 ms off = 26.5 ms§	2.6 mA	**1794-TBN**	30 mA	4.7 W @ 264V ac

✶Recommended terminal base is in bold text.
❄Auxiliary terminal strips are required when using the 1794-TBN for the 1794-IA16 module.
‡On = 8.6 ms by default. Selectable for 8.6, 9, 10, 12, 16, 24, 40, or 72 ms. Off = 26.6 ms by default. Selectable for 27, 28, 30, 34, 42, 58, or 90 ms.
§On = 7.5 ms by default. Selectable for 8.6, 9, 10, 12, 16, 24.5, or 42 ms. Off = 26.5 ms by default. Selectable for 27, 28, 29, 31, 35, 44, or 60.5 ms.

1794 FLEX Digital ac Output Modules

Cat. No.	Number of Outputs	Voltage, On-State Output, Nom.	Operating Voltage	Current per Output, Max.	Current per Module, Max.	Terminal Base Unit✶	FLEXBus Current (mA)	Power Dissipation, Max.
1794-OA8	8	120V ac	85...132V ac	750 mA @ 35 °C (95 °F) (5 mA minimum)	4 A	**1794-TBNF,** 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TBN	80 mA	4.1 W @ 0.5 A 6.3 W @ 0.75 A 6.3 W @ 1.0 A
1794-OA8I	8 individually isolated	120V ac	85...132V ac	750 mA @ 35 °C (95 °F) (5 mA minimum)	4 A	**1794-TBNF,** 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TBN	80 mA	4.1 W @ 0.5 A 6.3 W @ 0.75 A 6.3 W @ 1.0 A
1794-OA8K	8 conformally coated	120V ac	85...132V ac	750 mA @ 35 °C (95 °F) (5 mA minimum)	4 A	**1794-TBNF**, 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TBN	80 mA	4.1 W @ 0.5 A 6.3 W @ 0.75 A 6.3 W @ 1.0 A
1794-OA16	16	120V ac	74...132V ac	500 mA @ 35°C (95 °F) (50 mA minimum)	4 A	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TBN❄	80 mA	4.7 W @ 0.5 A
1794-OM8	8	220V ac	159...264V ac	500 mA @ 35°C (95 °F) (50 mA minimum)	4 A	**1794-TBNF,** 1794-TBN	60 mA	5 W @ 0.5 A

✶Recommended terminal base is in bold text.
❄Auxiliary terminal strips are required when using the 1794-TBN terminal base for the 1794-OA16 module.

1794 FLEX Digital dc Combination Input/Output Modules

	Inputs					Outputs					
Cat. No.	Number of Inputs	Voltage, On-State Input, Nom.	Voltage Category	Default Signal Delay	Current, Off-State Input, Max.	Number of Outputs	Current per Output, Max.	Terminal Base Unit✶	FLEXBus Current (mA)	External DC Supply Voltage, Nom.	Power Dissipation , Max.
1794-IB10XOB6	10 Sink	24V dc	19.2...31.2V dc	0.25 ms	1.5 mA	6 Source	200 mA	**1794-TB3,** 1794-TB3S	35 mA	19 mA @ 24V dc	6.0 W @ 31.2V dc
1794-IB16XOB16P	16 Sink	24V dc	10...31.2V dc	0.25 ms	1.5 mA	16 Source, protected	500 mA	**1794-TB32,** TB32S	80 mA	28 mA @ 24V dc	7.0 W @ 31.2V dc

✶Recommended terminal base is in bold text.

1794 FLEX Digital dc Input Modules

Cat. No.	Number of Inputs	Voltage, On-State Input, Nom.	Voltage Category	Default Signal Delay	Current, Off-State Input, Max.	Terminal Base Unit*	FLEXBus Current (mA)	Power Dissipation, Max.
1794-IB8	8 Sink	24V dc	19.2...31.2V dc	256 µs	1.5 mA	**1794-TB3,** 1794-TB3S	20 mA	3.1 W @ 31.2V dc
1794-IB16	16 Sink	24V dc	19.2...31.2V dc	512 µs	1.5 mA	**1794-TB3,** 1794-TB3S	30 mA	6.1 W @ 31.2V dc
1794-IB16D	16 Sink	24V dc	19.2...31.2V dc	512 µs	1.5 mA	**1794-TB32,** 1794-TB32S	30 mA	8.5 W @ 31.2V dc
1794-IB16K	16 Sink, conformally coated	24V dc	19.2...31.2V dc	512 µs	1.5 mA	**1794-TB3**, 1794-TB3S	30 mA	6.1 W @ 31.2V dc
1794-IB32	32 Sink, isolated in 2 groups of 16	24V dc	19.2...31.2V dc	0.25 ms	1.5 mA	**1794-TB32,** 1794-TB32S	35 mA	6.0 W @ 31.2V dc
1794-IV16	16 Source	24V dc	19.2...31.2V dc	256 µs	1.5 mA	**1794-TB2,** 1794-TB3, 1794-TB3S	30 mA	5.7 W @ 31.2V dc
1794-IC16	16 Sink	48V dc	30...60V dc	256 µs	1.5 mA	**1794-TB3,** 1794-TB3S	25 mA	6.4 W @ 60V dc

*Recommended terminal base is in bold text.

1794 FLEX Digital dc Output Modules

Cat. No.	Number of Outputs	Voltage Category	Current per Output, Max.	Current per Module, Max.	Terminal Base Unit*	FLEXBus Current (mA)	External DC Supply Current, Nom.	Power Dissipation, Max.
1794-OB8	8 Source	19.2...31.2V dc	500 mA	4 A	**1794-TB2,** 1794-TB3, 1794-TB3S	60 mA	25 mA @ 24V dc	3.3 W @ 31.2V dc
1794-OB8EP	8 Source, electronically fused	19.2...31.2V dc	2 A	10 A	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TBN	73 mA	80 mA @ 24V dc	5.5 W @ 31.2V dc
1794-OB8EPK	8 Source, electronically fused, conformally coated	19.2...31.2V dc	2 A	10 A	**1794-TB3**, 1794-TB2, 1794-TB3S, 1794-TBN	73 mA	80 mA @ 24V dc	5.5 W @ 31.2V dc
1794-OB16	16 Source	19.2...31.2V dc	500 mA	8 A	**1794-TB2,** 1794-TB3, 1794-TB3S	80 mA	49 mA @ 24V dc	5.3 W @ 31.2V dc
1794-OB16D	16 Source	19.2...31.2V dc	500 mA	8 A	**1794-TB3,** 1794-TB3S	60 mA	—	4.8 W @ 31.2V dc
1794-OB16P	16 Source, protected	19.2...31.2V dc	500 mA	8 A	**1794-TB2,** 1794-TB3, 1794-TB3S	60 mA	60 mA @ 24V dc	5.0 W @ 31.2V dc
1794-OB16PK	16 Source, protected, conformally	19.2...31.2V dc	500 mA	8 A	**1794-TB2**, 1794-TB3, 1794-TB3S	60 mA	60 mA @ 24V dc	5.0 W @ 31.2V dc
1794-OB32P	32 Source, protected, isolated in 2 groups of 16	31.2V dc	500 mA	14 A	**1794-TB32,** 1794-TB32S	80 mA	215 mA @ 24V dc	5.3 W @ 31.2V dc
1794-OV16	16 Sink	19.2...31.2V dc	500 mA	8 A	**1794-TB3,** 1794-TB3S	80 mA	60 mA @ 24V dc	4.2W @ 31.2V dc
1794-OV16P	16 Sink, protected	19.2...31.2V dc	500 mA	8 A	**1794-TB3,** 1794-TB3S	80 mA	49 mA @ 24V dc	4.2 W @ 31.2V dc
1794-OC16	16 Source	30...60V dc	500 mA	8 A	**1794-TB3,** 1794-TB2, 1794-TB3S	80 mA	21 mA @ 24V dc	3.7 W @ 60V dc

*Recommended terminal base is in bold text.

1794 FLEX Digital Contact Output Modules

Cat. No.	Number of Outputs	Voltage Category	Current per Output, Max.	Current per Module, Max.	Terminal Base Unit*	FLEXBus Current (mA)	External DC Supply Current Range	Power Dissipation, Max.
1794-OW8	8 individually isolated, N.O. relay contact	5…240V dc	3 A @ 250V ac resistive	16 A	**1794-TBNF**, 1794-TBN, 1794-TB2, 1794-TB3, 1794-TB3S	70 mA	125 mA, max	5.5 W @ 31.2V dc

*Recommended terminal base is in bold text.

1794 FLEX Analog I/O Modules

Cat. No.	Number of Inputs	Number of Outputs	Input Signal Range	Terminal Base Unit	FLEXBus Current (mA)	External DC Supply Current, Nom.	Power Dissipation, Max.
1794-IE4XOE2	4 single-ended	2 single-ended	4…20 mA 0…20 mA ±10V 0…10V	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS✶	20 mA	70 mA @ 24V dc	4.0 W @ 31.2V dc
1794-IE8XOE4	8 single-ended	4 single-ended	4…20 mA (user configurable) 0…20 mA (user configurable)	1794-TB3G or 1794-TB3GS	80 mA	140 mA @ 24V dc; 280 mA @ 10.0V dc	3.0 W @ 31.2V dc; 2.3 W @ 24V dc; 2.0 W @ 10.0V dc
1794-IF2XOF2I	2 isolated	2 isolated	4…20 mA 0…20 mA ±20 mA ±10V 0…10V ±5V 0…5V	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBN✶	50 mA	150 mA @ 24V dc	3.3 W @ 31.2V dc
1794-IE8	8 single-ended	—	4…20 mA 0…20 mA ±10V 0…10V	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS✶	20 mA	60 mA @ 24V dc	3 W @ 31.2V dc
1794-IE8H	8 single-ended, HART interface	—	4…20 mA	1794-TB3G or 1794-TB3GS	—	—	3.9 W
1794-IE8K	8 single-ended, conformally coated	—	4…20 mA 0…20 mA ±10V 0…10V	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS✶	20 mA	60 mA @ 24V dc	3 W @ 31.2V dc
1794-IE12	12 single-ended	—	4…20 mA (user configurable) 0…20 mA (user configurable)	1794-TB3G or 1794-TB3GS	80 mA	30 mA @ 24V dc; 45 mA @ 10.0V dc	1.2 W @ 31.2V dc; 1.1 W @ 24V dc; 0.9 W @ 10.0V dc
1794-IF4I	4 isolated	—	4…20 mA 0…20 mA ±20 mA ±10V 0…10V ±5V 0…5V	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBN✶	50 mA	80 mA @ 24V dc	2.0 W @ 31.2V dc
1794-IR8	8 single-ended, RTD	—	1…433 Ω	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS✶	20 mA	140 mA @ 24V dc	3 W @ 31.2V dc
1794-IRT8	8 single-ended, thermocouple or RTD	—	-40…+100 mV dc for thermocouples 0…325 mV dc for RTDs 0…500 Ω for resistance range	**1794-TB3G,** 1794-TB3GS✶	40 mA	85 mA @ 24V dc	3 W @ 31.2V dc
1794-IRT8K	8 single-ended, thermocouple or RTD, conformally coated	—	-40…+100 mV dc for thermocouples 0…325 mV dc for RTDs 0…500 Ω for resistance range	**1794-TB3G,** 1794-TB3GS✶	40 mA	85 mA @ 24V dc	3 W @ 31.2V dc
1794-IT8	8 single-ended, thermocouple	—	±76.5 mV	**1794-TB3T,** 1794-TB2, 1794-TB3, 1794-TB3S, 1794-TB3TS✶❄	20 mA	150 mA @ 24V dc	3 W @ 31.2V dc
1794-OE4	—	4 single-ended	—	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBN✶	20 mA	70 mA @ 24V dc‡	4.5 W @ 31.2V dc
1794-OE4K	—	4 single-ended, conformally coated	—	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBN✶	20 mA	70 mA @ 24V dc‡	4.5 W @ 31.2V dc
1794-OE8H	—	4 single-ended, HART interface	—	1794-TB3G or 1794-TB3GS	—	—	6.1 W
1794-OE12	—	12 single-ended	—	1794-TB3G or 1794-TB3GS	80 mA	320 mA @ 24V dc; 720 mA @ 10.0V dc	4.0 W @ 31.2V dc; 4.3 W @ 24V dc; 4.0 W @ 10.0V dc
1794-OF4I	—	4 isolated	—	**1794-TB3,** 1794-TB2, 1794-TB3S, 1794-TB3T, 1794-TB3TS, 1794-TBN✶	50 mA	210 mA @ 24V dc	4.7 W @ 31.2V dc

✶Recommended terminal base is in bold text.
❄You can use a 1794-TB2, 1794-TB3, or 1794-TB3S terminal base for mV inputs only.
‡Not including outputs.

1794 FLEX Counter Modules

Cat. No.	Number of Inputs	Number of Outputs	Input Frequency, Max.	Terminal Base Unit	FLEXBus Current (mA)	External DC Supply Current, Nom.	Power Dissipation, Max.
1794-ID2	2 , 2 groups of A, B, Z, G inputs	—	100 kHz	**1794-TB3,** 1794-TB3S, 1794-TBN, 1794-TBNF❄‡	5 mA@ 5V dc	150 mA @ 12V dc 75 mA @ 24V dc	5 W @ 26.4V dc
1794-IJ2	2 counters, each with 2 digital inputs	2 counters, each with 1 digital output	1…32 kHz w/sine wave; 1…32 kHz w/square wave input	**1794-TB3G,** 1794-TB3GS❄	30 mA	220 mA @ 19.2V dc; 180 mA @ 24V dc; 140 mA @ 31.2V dc	4.6 W @ 31.2V dc
1794-IJ2K	2 counters, each with 2 digital inputs, conformally coated	2 counters, each with 1 digital output	—	—	— mA	—	—
1794-IP4	4 pulse counters, each with 2 inputs	—	100	**1794-TB3,** 1794-TB3S, 1794-TBN, 1794-TBNF❄‡	5 mA	150 mA @ 12V dc 75 mA @ 24V dc	5 W @ 26.4V dc
1794-VHSC✶	2 counters, each with digital inputs	2 channels, each with 1 digital output	1.0 MHz counter and encoder X1 (no filters) 500 kHz encoder X2 (no filters) 250 kHz encoder X4 (no filters)	**1794-TB3G,** 1794-TB3GS❄§❄	75 mA♣	100 mA @ 24V dc Does not represent power required to supply the inputs or outputs.	5 W @ 31.2V dc

✶As of firmware revision 11, you can install the 1794-VHSC module (and any other module that uses extended data transfers) on the local or extended-local DIN rails of a FlexLogix system. Previous revisions of the controller firmware support these modules only as remote ControlNet I/O.
❄Recommended terminal base is in bold text.
‡Auxiliary terminal strips are required when using the 1794-TBN or 1794-TBNF terminal base for this catalog number.
§For use with 1794-ACN15, 1794-ANCR15, and 1794-AENT scanner only.
♣FLEXBus Current = 75 mA with terminal base power off.

1797 FLEX Ex Digital I/O Modules

1797 FLEX Ex Digital dc Input Modules

Cat. No.	Number of Inputs	Voltage, On-State Input, Nom.	Voltage Category	Default Signal Delay	Current, Off-State Input, Max.	Terminal Base Unit	Power Consumption (W) at 24V	Power Dissipation, Max.
1797-IBN16	16 Sink	NAMUR compatible	NAMUR compatible dc	1 ms	1.2 mA	1797-TB3, 1797-TB3S	2.8	2.8 W

1797 FLEX Ex Digital dc Output Modules

Cat. No.	Number of Outputs	Voltage Category	Maximum Current per Output	Maximum Current per Module	Terminal Base Unit	Power Consumption (W) at 24V	Power Dissipation, Max.
1797-OB4D	4 Source	24V dc	45 mA	180 mA	1797-TB3, 1797-TB3S	7.5	5 W

1797 FLEX Ex Analog I/O Modules

Cat. No.	Number of Inputs	Number of Outputs	Input Signal Range	Terminal Base Unit	Power Consumption (W) at 24V	Power Dissipation
1797-IE8	8 single-ended	—	0…20 mA	1797-TB3, 1797-TB3S	7.5	5.2 W
1797-IE8H	8 single-ended, HART	—	0...20 mA 4...20 mA	1797-TB3 or -TB3S	7.5	5.2 W
1797-IE8NF	8 single-ended, noise filter	—	0…20 mA	1797-TB3, 1797-TB3S	7.5	5.2 W
1797-IRT8	8 single-ended, thermocouple or RTD	—	0…500 Ω -40…100 mV TC RTD	1797-TB3, 1797-TB3S	1.6	1.6 W
1797-OE8	—	8 single-ended	—	1797-TB3, 1797-TB3S	6.3	5.4 W
1797-OE8H	—	8 single-ended, HART	—	1797-TB3 or -TB3S	6.3	5.4 W

1794 FLEX Counter Modules

Cat. No.	Number of Inputs	Number of Outputs	Input Frequency, Max.	Terminal Base Unit	Power Consumption (W) at 24V	Power Dissipation, Max.
1797-IJ2	2 channels, each with 2 digital NAMUR inputs	2 channels, each with 1 digital output	1.0 Hz...32,767 Hz	1797-TB3, 1797-TB3S	4.25	4.25 W

Terminal Bases

Terminal bases provide backplane connections to the controller and the I/O module and provide terminal connection points for an I/O module.

1794 FLEX Terminal Bases

Cat. No.	Number of Terminals	Special Features	Termination Type
1794-TB2	36	—	Cage-clamp
1794-TB3	52	—	Cage-clamp
1794-TB3K	52	Conformally coated	Cage-clamp
1794-TB3S	52	—	Spring-clamp
1794-TB3T	52	Cold-junction-compensation connections for thermocouple inputs	Cage-clamp
1794-TB3TS	52	Cold-junction-compensation connections for thermocouple inputs	Spring-clamp
1794-TB3G	52	Individual terminals for use with specific modules	Cage-clamp
1794-TB3GK	52	Individual terminals for use with specific modules Conformally coated	Cage-clamp
1794-TB3GS	52	Individual terminals for use with specific modules	Spring-clamp
1794-TB32	52	—	Cage-clamp
1794-TB32S	52	—	Spring-clamp
1794-TB37DS	37	—	D-shell
1794-TB37EXD4VM8	—	Distribution board	—
1794-TB62DS	62	—	D-shell
1794-TB62EXD4X15	—	Distribution board	—
1794-TBKD	28	16 single-throw, single pole (SPST) knifeswitches	Cage-clamp
1794-TBN	20	Cover for terminals	Screw-clamp
1794-TBNF	20	Fused connection points for the I/O with cover for terminals	Screw-clamp
1203-FB1	—	Required for the 1203-FM1 module	—

1797 FLEX Ex Terminal Bases

Cat. No.	Number of Terminals	Special Features	Terminal Type
1797-TB3	53	—	Screw cage
1797-TB3S	53	—	Spring clamp

1794 FLEX Communication Modules

1794-FLA Extended-Local I/O Adapter

The FlexLogix extended-local adapter lets you connect an additional DIN rail of local I/O to the FlexLogix controller. The extended-local rail can support as many as 8 I/O modules.

Important: You cannot place FLEX Ex modules with the 1794-FLA adapter on the

Cat. No.	Voltage, On-State Input, Max.	Cable	FLEXBus Current (mA)	Power Consumption, Max.	Power Supply
1794-FLA	19.2V...31.2V dc	1794-CE1 cable (0.3 m, 1 ft) 1794-CE3 cable (0.9 m, 3 ft)	653 mA	6.5 W (250 mA) maximum from external 24V dc power source	1794-PS3 or 1794-PS13 In applications that must be compliant with CSA requirements, use a Separated Extra-Low Voltage (SELV) power supply that is compliant with IEC 61010.1, Annex H.

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, C-Tick.

1794 Communications Adapters

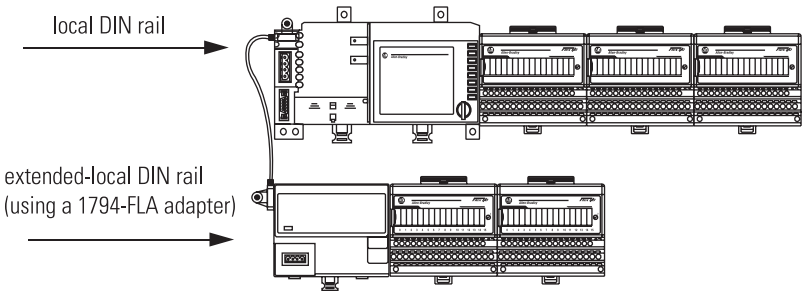
The FlexLogix controller can communicate with these adapter modules to control distributed FLEX I/O modules.

Cat. No.	Description	I/O Module Capacity	Number of I/O Points, Max.	Power Supply 24V Current Load (mA)	Power Consumption (W) at 24V	FLEXBus Current (mA)
1794-ACN15 1794-ACNR15	FLEX I/O 24V dc ControlNet Media Adapter	8 modules	256	330	7.9 W	640 mA
1794-ACN15K 1794-ACNR15K	FLEX I/O 24V dc ControlNet Media Adapter, conformally coated	8 modules	256	330	7.9 W	640 mA
1794-ADN	FLEX I/O 24V dc DeviceNet Media Adapter	8 modules	256	330	7.9 W	640 mA
1794-ADNK	FLEX I/O 24V dc DeviceNet Media Adapter, conformally coated	8 modules	256	330	7.9 W	640 mA
1794-AENT	FLEX I/O 24V dc EtherNet/IP Adapter	8 modules	256	450	9.6 W	640 mA

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, C-Tick.

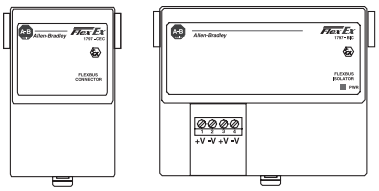
Place FLEX I/O Modules

The FlexLogix controller supports a local DIN rail of as many as 8 I/O modules and an extended-local DIN rail of as many as 8 I/O modules.



If you have a mix of analog and digital I/O modules, place the digital I/O modules on one DIN rail and place the analog I/O modules on the second DIN rail. You can then configure a faster RPI for the digital I/O and a more appropriate RPI for the analog I/O without impacting the digital I/O.

Isolate FLEX Ex I/O Modules



To maintain the intrinsic safety (IS) isolation of FLEX Ex I/O modules in a FlexLogix system, you must install:

- the FLEX Ex I/O modules only on the local rail.
- a 1797-BIC Flexbus isolator module and 1797-CEC connector module between the FlexLogix controller or FLEX I/O modules and the FLEX Ex modules.

You can also use a 1797-BCNR ControlNet barrier module to interconnect between ControlNet and ControlNet Ex networks.

Cat. No.	Function	Cable	Power Consumption, Max.	Power Dissipation
1797-BIC	Isolate FLEX Ex modules from FlexLogix system	1794-CE1 cable (0.3 m, 1 ft) 1794-CE3 cable (0.9 m, 3 ft)	0.15 A @ 18…32V dc	2.1 W
1797-CEC	Connect FLEX Ex modules to FlexLogix system	—	—	—
1797-BCNR	Interconnect ControlNet and ControlNet Ex networks	ControlNet coax	—	—

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, FM.

Step 2 - Select:

- *Networks*
- *Communication cards (2 maximum per controller)*
- *Associated cable(s) and network equipment*

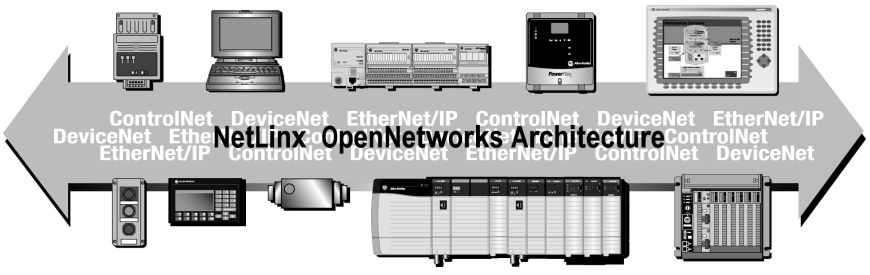
Network Communications

Separate communication interfaces are available for different networks. Each controller supports as many as two communication cards, in addition to its built-in port that can be configured for RS-232 serial (DF1 protocol) or DH-485 communications.

NetLinx Open Network Architecture

NetLinx Open Network Architecture is the Rockwell Automation strategy of using open networking technology for seamless, top-floor to shop-floor integration. The NetLinx-based networks – DeviceNet, ControlNet, and EtherNet/IP – all use the Common Industrial Protocol (CIP), so they speak a common language and share a universal set of communication services. NetLinx architecture, part of the Integrated Architecture, seamlessly integrates all the components in an automation system from a few devices on one network to multiple devices on multiple networks including access to the Internet – helping you to improve flexibility, reduce installation costs, and increase productivity.

- The EtherNet/IP network is an open industrial-networking standard that supports implicit and explicit messaging and uses commercial, off-the-shelf Ethernet equipment and physical media.
- The ControlNet network allows intelligent, high-speed control devices to share the information required for supervisory control, work-cell coordination, operator interface, remote device configuration, programming, and troubleshooting.
- The DeviceNet network offers low-cost, high-speed access to plant-floor data from a broad range of plant-floor devices and a significant reduction in wiring.

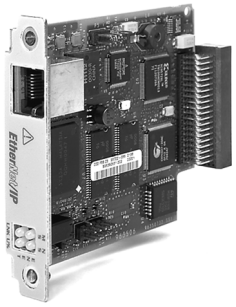

ControlNet DeviceNet EtherNet/IP ControlNet DeviceNet EtherNet/IP
DeviceNet Ethe ControlNet
EtherNet/IP ControlNet DeviceNet EtherNet/IP ControlNet DeviceNet
NetLinx OpenNetworks Architecture

Available Networks

You can configure your system for information exchange between a range of devices and computing platforms and operating systems.

If your application requires	Use this network	Select
• Plant management (material handling) • Configuration, data collection, and control on a single, high-speed network • Time-critical applications with no established schedule • Data sent regularly • Internet/Intranet connection	EtherNet/IP network	1788-ENBT scanner
• High-speed transfer of time-critical data between controllers and I/O devices • Deterministic and repeatable data delivery • Intrinsic safety	ControlNet network	1788-CNC, -CNCR scanner 1788-CNF, -CNFR scanner
• Connections of low-level devices directly to plant floor controllers, without interfacing them through I/O modules • Data sent as needed • More diagnostics for improved data collection and fault detection • Less wiring and reduced start-up time than a traditional, hard-wired system	DeviceNet network	1788-DNBO scanner
• Modems • Supervisory control and data acquisition (SCADA)	Serial network	Built-in serial port
• Connections to existing DH-485 networks	DH-485 network	Built-in serial port with a 1761-NET-AIC

EtherNet/IP Network



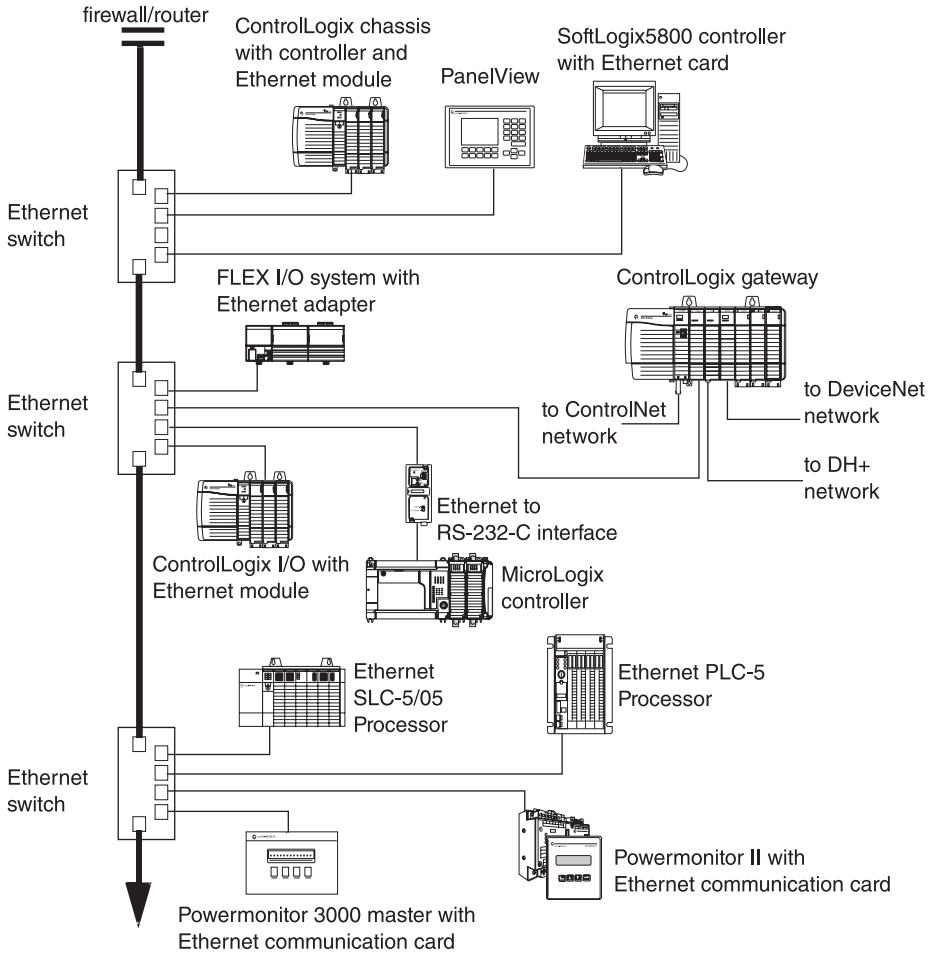
The Ethernet Industrial (EtherNet/IP) network protocol is an open industrial-networking standard that supports both real-time I/O messaging and message exchange. It emerged due to the high demand for using the Ethernet network for control applications. The EtherNet/IP network uses off-the-shelf Ethernet communication chips and physical media.

The EtherNet/IP network provides excellent drive and I/O control performance along with HMI information processing and many commercial technologies.

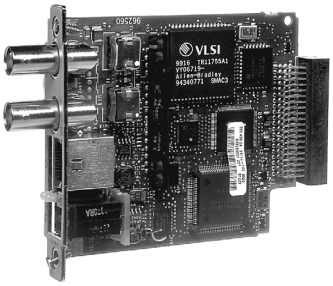
Select an EtherNet/IP Interface

Cat. No.	Communication Rate	Connections	EtherNet/IP Cable	Power Dissipation, Max.	Backplane Current (mA) at 5V ①
1788-ENBT	10/100 Mbps	32 connections per card (any mix of I/O and messaging)	Twisted pair RJ-45	2.4 W	465 mA❄

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, C-Tick.
✶To comply with UL restrictions, this equipment must be powered from a source compliant with Class 2 or Limited Voltage/Current, as defined in UL 508 Seventeenth Edition Section 32.



ControlNet Network



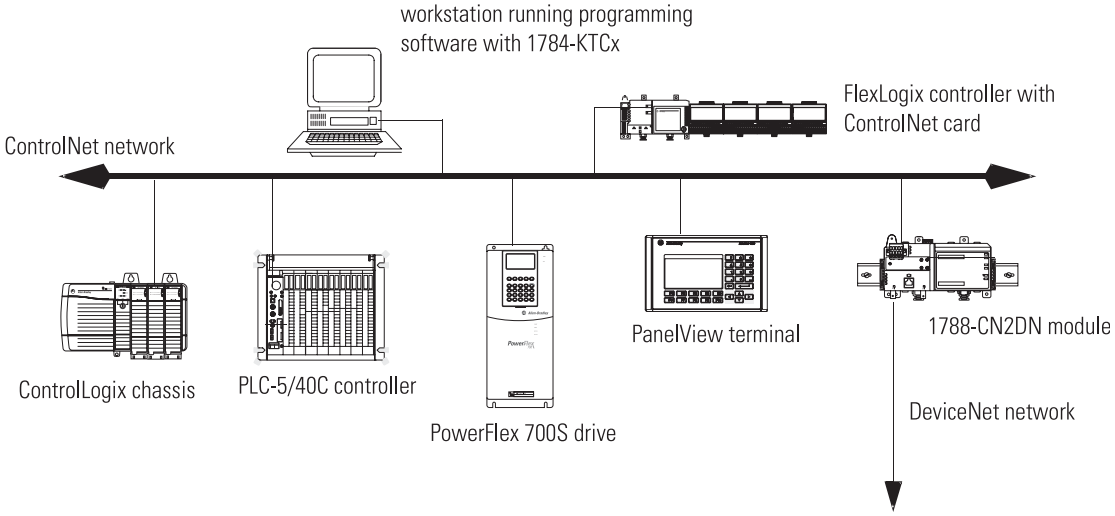
The ControlNet network is an open, state-of-the-art control network that meets the demands of real-time, high-throughput applications. The ControlNet network uses the proven Common Industrial Protocol (CIP) to combine the functionality of an I/O network and a peer-to-peer network providing high-speed performance for both functions.

The ControlNet network gives you deterministic, repeatable transfers of all mission-critical control data in addition to supporting transfers of non-time-critical data. I/O updates and controller-to-controller interlocking always take precedence over program uploads and downloads and messaging.

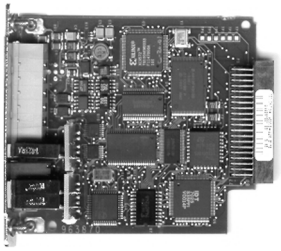
ControlNet Interface Specifications

Cat. No.	Communication Rate	Connections	Cable	Power Dissipation, Max.	Backplane Current (mA) at 5V ①
1788-CNC	5 Mbps	32 connections (depending on the RPI, as many as 22 connections can be scheduled) The remaining connections (or all 32, if you have no scheduled connections) can be used for unscheduled connections.	RG-6 coaxial cable 1786-RG6 (quad shield cable) 1786-RG6F (quad shield high flex coax cable)	2.25 W	450 mA
1788-CNCR (redundant media)				2.38 W	475 mA
1788-CNF			200/300 micron HCS (hard-clad silica) fiber optic cable Versalink V-system	2.20 W	440 mA
1788-CNFR (redundant media)			Fiber media requires 1786-RPA and 1786-RPFS to convert fiber media back to coax.	2.25 W	450 mA

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), UR, CE, C-Tick.



DeviceNet Network

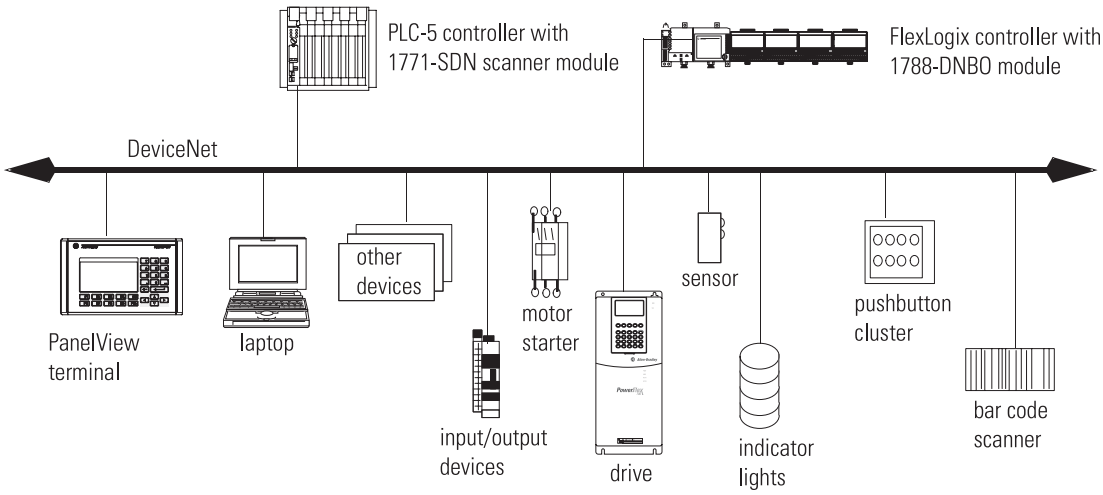


The DeviceNet network is an open, low-level network that provides connections between simple industrial devices (such as sensors and actuators) and higher-level devices (such as PLC controllers and computers). The DeviceNet network uses the proven Common Industrial Protocol (CIP) to provide the control, configure, and data collection capabilities for industrial devices.

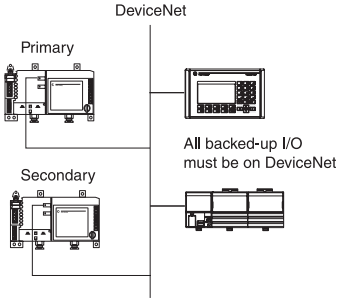
DeviceNet Interface Specifications

Cat. No.	Communication Rate	Connections	Cable	Power Dissipation, Max.	Backplane Current (mA) at 5V①
1788-DNBO	• 125 Kbps • 250 Kbps • 500 Kbps	Requires 2 connections to a dedicated controller (for status and I/O)	5-pin DeviceNet cable provided with the card	1.3 W	450 mA

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE, FM, C-Tick.



Backup Systems via a DeviceNet Network



FlexLogix backup relies on the ability to have shared DeviceNet mastership of slave I/O devices. The heartbeat communications between the primary and secondary controllers determines which 1788-DNBO scanner is the master and which scanner is in standby.

Requires:

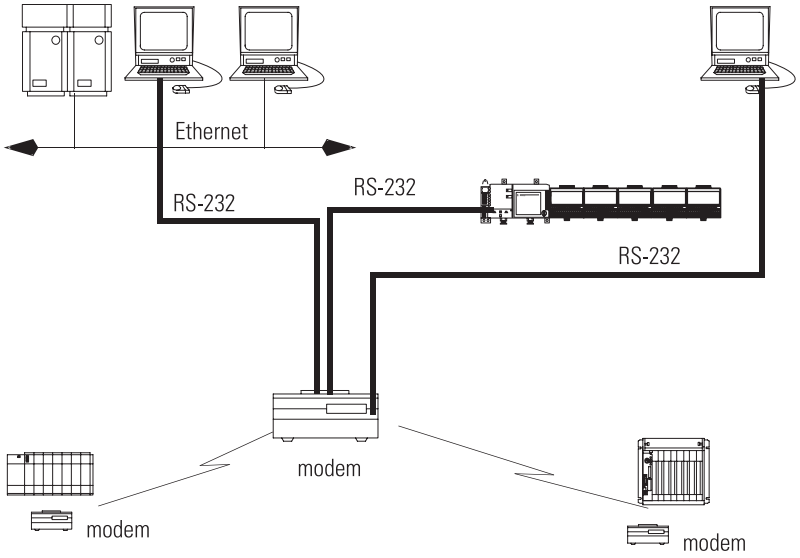
- RSLogix 5000 software must be at version 10 or later and FlexLogix firmware must be at revision 10 or later.
- The primary controller and the secondary controller each need their own 1788-DNBO scanner. The 178-DNBO firmware must be at revision 2.*x* or later.
- The DeviceNet network should be set up with both the primary and secondary 1788-DNBO node addresses set to 0.
- All the I/O and operator interface devices that require backup must be on the DeviceNet network.

Serial Network

The serial port is compatible with RS-232 serial communication. The serial port supports the DF1 protocol to communicate with other devices on the serial link.

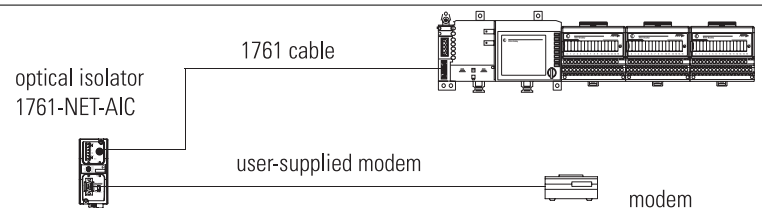
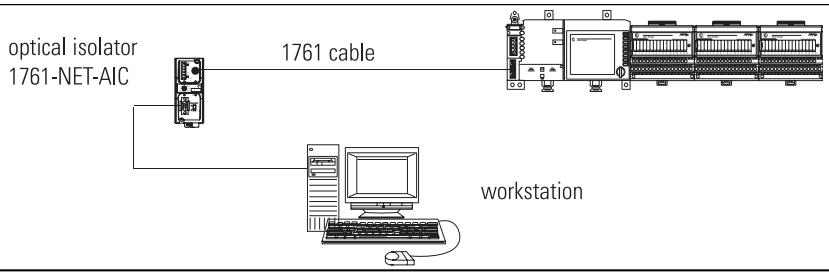
Use this DF1 mode	For
Point-to-point	Communication between a controller and other DF1-compatible devices using DF1 full-duplex protocol.
DF1 radio modem	SCADA applications where controllers exchange data via radio transmission.
DF1 master	Control of polling and message transmission between the master and each slave using DF1 half-duplex polled protocol.
DF1 slave	Using the controller as a slave station in a master/slave serial network using DF1 half-duplex protocol.
User mode (ASCII)	Communication between a controller and an ASCII device, such as a bar code reader.

The serial port is Channel 0 and is fully isolated. The serial channel supports DF1, DH-485, and ASCII protocols.



Optical Isolator

The FlexLogix controller is grounded through its DIN rail and its grounding stud. An isolator is recommended between the controller and the workstation.

Application	Example Configuration
If you connect the controller to a modem or an ASCII device, install the optical isolator between the controller and end device.	
An optical isolator is recommended if you use the serial port to directly connect a programming workstation to the controller.	

Modbus Support

To use Logix5000 controllers on Modbus, you connect through the serial port and execute a specific ladder logic routine. The controller project is available with RSLogix 5000 Enterprise programming software. For more information, see Using Logix5000 Controllers as Masters or Slaves on Modbus Application Solution, publication CIG-AP129.

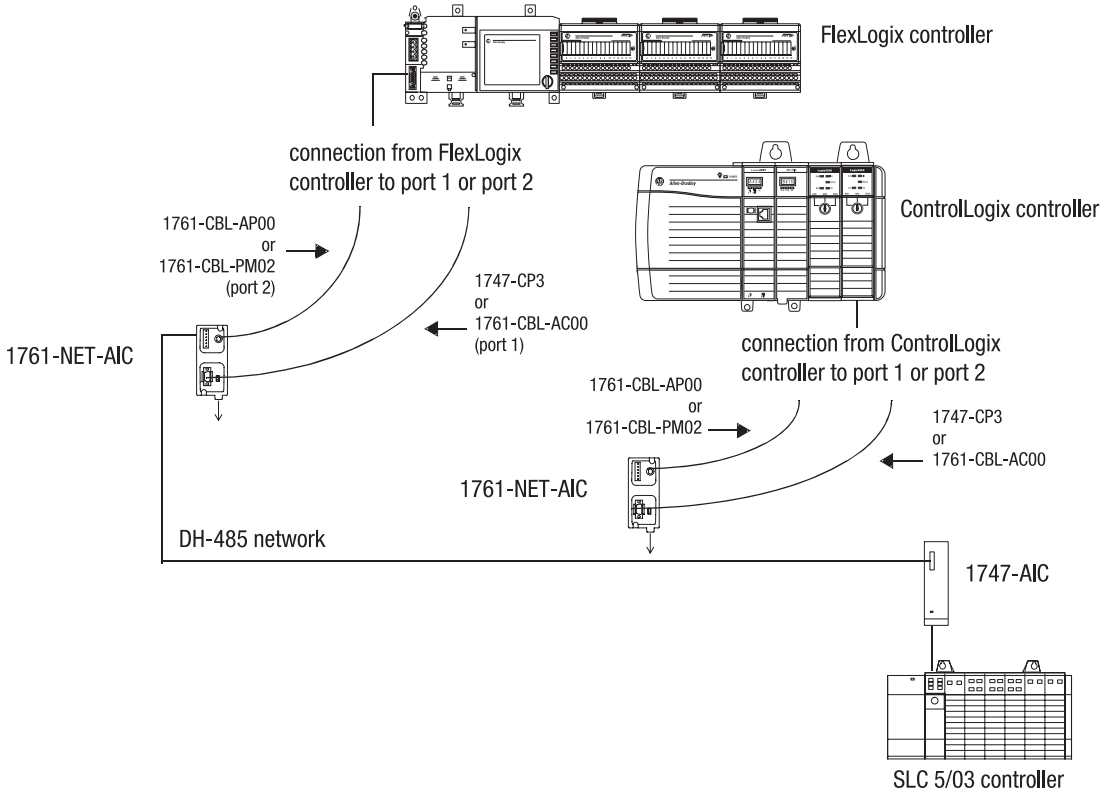
DH-485 Network

On the DH-485 network, the controller can send and receive messages to and from other controllers on the network. The DH-485 connection does support remote programming and monitoring via RSLogix 5000 software. However, excessive traffic over a DH-485 connection can adversely affect overall performance and can lead to timeouts and loss in RSLogix 5000 configuration performance.

Important: Use Logix5000 controllers on DH-485 networks only when you want to add controllers to an existing DH-485 network. For new applications with Logix5000 controllers, networks in the NetLinx open architecture are the recommended networks.

You need a 1761-NET-AIC converter for each controller you want to put on the DH-485 network. You can have two controllers per one 1761-NET-AIC converter, but you need a different cable for each controller. Connect one controller to port 1 (9-pin connector) and one controller to port 2 (mini-DIN connector).

To connect to this port	Use this cable
Port 1 DB-9 RS-232, DTE connection	1747-CP3 or 1761-CBL-AC00
Port 2 mini-DIN 8 RS-232 connection	1761-CBL-AP00 or 1761-CBL-PM02



Step 3 - Select:

- *A controller with sufficient memory*
- *Replacement batteries*

1794 FlexLogix Controllers

FlexLogix controllers can monitor and control I/O across the 1794 backplane, as well as over I/O links. FlexLogix controllers can communicate with computers or other processors across RS-232-C (DF1/DH-485 protocol), DeviceNet, ControlNet, and EtherNet/IP networks. To provide communication for a FlexLogix controller, install the appropriate communication interface module into the controller.

The multi-tasking operating system supports 8 configurable tasks that can be prioritized. One task can be continuous. The others must be periodic or event tasks. Each task can have as many as 32 programs, each with its own local data and logic, allowing virtual machines to operate independently within the same controller.

Specification	Description
FlexBus Output Current @ 5V dc	653 mA
Power Supply	1794-PS3 or 1794-PS13 In applications that must be compliant with CSA requirements, use a Separated Extra-Low Voltage (SELV) power supply that is compliant with IEC 610101, Annex H.
Battery	1756-BA1 (94194801) - comes with the controller
Programming Cable	1761-CBLPM02 to 1761-NET-AIC isolator 1761-CBLPA00 to 1761-NET-AIC isolator 1756-CP3 directly to controller 1747-CP3 directly to controller
Extended-Local I/O Cable	1794-CE1 cable (0.3 m, 1 ft) 1794-CE3 cable (0.9 m, 3 ft)

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.

FlexLogix Controllers

Cat. No.	User Memory✶		Power Dissipation, Max.	Thermal Dissipation, Max.	Backplane Current (mA) at 5V
	Battery-Backed Static RAM	Nonvolatile Memory			
1794-L34	512 Kbytes	512 Kbytes❄	3.5 W	11.6 BTU/hr	1.2 A

Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.
✶Available user memory is the amount of memory available to the user after RSLogix 5000 Enterprise Series software is connected and a null program is loaded.
❄Must have a series B controller with firmware revision 11 or later.

Estimate Controller Memory Use

The following equations provide an estimate of the memory needed for a controller.

Controller tasks	_____ * 4000	=	_____ bytes (minimum 1 task)
Digital I/O points	_____ * 400	=	_____ bytes
Analog I/O points	_____ * 2600	=	_____ bytes
Communication cards✶	_____ * 5000	=	_____ bytes

✶When estimating memory use by communication modules, count all the communication modules in the system, not just those in the local chassis. This includes device connection modules, adapter modules, and ports on PanelView terminals.

Compatibility

Control Distributed I/O Modules

The FlexLogix controller can control these distributed I/O modules using the I/O Configuration tree in RSLogix 5000 programming software.

I/O Modules	EtherNet/IP	ControlNet	DeviceNet
1732 ArmorBlock	Yes	No	Yes
1734 POINT	Yes	Yes	Yes
1734D POINTBlock	No	No	Yes
1746 SLC	No	No	No
1756 ControlLogix	Yes	Yes	No
1769 Compact	No	No	Yes
1771 PLC-5	No	Yes❄	No
1790 CompactBlock LDX	No	No	Yes
1791D CompactBlock	No	No	Yes
1792D ArmorBlock MaXum	No	No	Yes
1794 FLEX	Yes	Yes	Yes
1797 FLEX Ex	No	Yes	No
1798 FLEX Armor	No	No	Yes
1799 Embedded	No	No	Yes

✶Requires RSLogix 5000 programming software version 11 or later. Use the generic FLEX profile.
❄Use a 1771-ACN15, 1771-ACNR15 adapter module. Version 10 and later of RSLogix 5000 Enterprise Series software supports 1771 digital, analog, and specialty I/O modules. Previous versions of the software support only 1771 digital I/O modules.

Communicate with Display Devices

The FlexLogix controller can communicate with these display devices.

Display Devices	EtherNet/IP	ControlNet	DeviceNet	RS-232 (DF1)	DH-485
2711P PanelView Plus terminal	Yes	Yes	Yes	Yes	No✶
6182H VersaView CE computer	Yes	Yes	Yes	Yes	No✶
2711 PanelView terminal	Yes	Yes	Yes	Yes❄	Yes❄
2711 e PanelView terminal	No	Yes	No	No	No
800E, 800T RediSTATION/RediPANEL operator module	No	No	Yes	No	No
2706 InView message display	Yes	Yes	Yes	Yes	Yes
2706 DL40 Dataliner message display	No	No	No	Yes	No
2706 DL, DL50 DataLiner message display	No	No	No	Yes	No
2707 DTAM Plus operator interface	No	No	Yes	Yes❄	Yes❄

✶These devices support DH-485 communication to FlexLogix and CompactLogix controllers.
❄Use PLC/SLC mapping.

Communicate with Other Controllers

The FlexlLogix controller can communicate with these controllers.

Controller	EtherNet/IP	ControlNet	DeviceNet	RS-232 (DF1)	DH-485
1756 ControlLogix 1756 GuardLogix	Yes	Yes	Yes	Yes	Yes
1768, 1769 CompactLogix	Yes	Yes	Yes	Yes	Yes
1789 SoftLogix5800	Yes	Yes	Yes	Yes	No
1794 FlexLogix	Yes	Yes	Yes	Yes	Yes
5720 PowerFlex 700S with DriveLogix	Yes	Yes	Yes	Yes	Yes
1785 PLC-5	Yes✶❄	Yes	Yes‡	Yes	NA
1747 SLC	Yes§	Yes	Yes‡	Yes	Yes
1761 MicroLogix	Yes	No	Yes‡	Yes	Yes
1762 MicroLogix	Yes	No	Yes‡	Yes	Yes
1763 MicroLogix	Yes	No	Yes‡	Yes	Yes
1764 MicroLogix	Yes	No	Yes‡	Yes	Yes
1772 PLC-2	NA	NA	NA	Yes⌘	NA
1775 PLC-3	NA	NA	NA	Yes❖	NA
5250 PLC-5/250	NA	NA	No	Yes	NA

✶The Ethernet PLC-5 controller must be series C, firmware revision N.1 or later; series D, firmware revision E.1 or later; or series E, firmware revision D.1 or later.
❄The 1785-ENET Ethernet communication interface module must be series A, firmware revision D or later.
‡The PLC-5, SLC, and MicroLogix processors appear as I/O points to the Logix controller. Use the appropriate DeviceNet interface for the controller.
§Use a 1747-L55*x* controller with OS501 or greater.
➤The PLC-2 controller requires a 1785-KA module for DH+ communications.
⌘The PLC-2 controller requires a 1771-KG module for serial (DF1) communications.
✦The PLC-3 controller requires a 1775-S5 module for DH+ communications.
❖The PLC-3 controller requires a 1775-KA module for serial (DF1) communications.

Communicate with Other Communication Devices

The FlexLogix controller can communicate with these communication devices.

Communication Device	EtherNet/IP	ControlNet	DeviceNet	RS-232 (DF1)	DH-485
1770-KFD	NA	NA	Yes	NA	NA
9355 RSLinx software	Yes	Yes	No	Yes	No
1784-KTC, 1784-KTC*x*, 1784-KTC*x*15, 1784-PCIC(S), 1784-PCC	NA	Yes	NA	NA	NA
1784-PCIDS, 1784-PCD	NA	NA	Yes	NA	NA
1784-KTX, 1784-KTXD, 1784-PCMK	NA	NA	NA	NA	NA
1788-CN2DN	NA	Yes	Yes	NA	NA
1788-EN2DN	Yes	NA	Yes	NA	NA
1788-CN2FF	NA	Yes	NA	NA	NA
1203-CN1 ControlNet module	NA	Yes✶	NA	NA	NA
1203-FM1/FB1 SCANport	NA	Yes❄	NA	NA	NA

✶Use the generic module configuration to configure the 1203-CN1 module and a CIP generic MSG instruction to communicate with the module.
❄Use a CIP generic MSG instruction to communicate with the 1203-FM1 SCANport module on a DIN rail that is remote to the controller. The remote DIN rail also requires a 1794-ACN(R)15 ControlNet adapter module.

Determine Total Connection Use

The total connection requirements for a FlexLogix system include both local and remote connections. Tallying local controller connections is not an issue because the controller supports the maximum number of modules on both the local and extended-local DIN rails. It is important to tally remote connections through a communication card because the communication card you select determines how many remote connections are available for I/O and information. Use the following table to tally **remote** connections for a communication card.

Connection Type	Device Quantity	Connections per	Total Connections
Remote ControlNet communication device (such as a 1794-ACN15, -ACNR15 or 1756-CNB module) • Direct (none) connection. • Rack-optimized connection. • Listen-only rack-optimization (1756-CNB only).		0 **or** 1 **or** 1	
Remote I/O device over ControlNet (direct connection)		1	
Remote EtherNet/IP communication device (such as a 1794-AEN adapter or 1756-ENBT module) • Direct (none) connection. • Rack-optimized connection. • Listen-only rack-optimization (1756-ENBT only).		0 **or** 1 **or** 1	
Remote I/O device over EtherNet/IP (direct connection)		1	
Remote device over DeviceNet (accounted for in rack-optimized connection for local 1788-DNBO module)		0	
Produced tag		1	
Each consumer		1	
Consumed tag		1	
Cached message		1	
Total connections used			

After calculating the number of remote connections, make sure they do not exceed the limitations of the communication card.

- Each ControlNet communication card supports 32 total connections, 22 of which can be scheduled (such as direct I/O connections and produced and consumed tags).
- The Ethernet/IP communication card supports 32 total connections of any type.

Step 4 - Select:

- *If power consumption exceeds the maximum for a single power supply, install additional power supplies*

FlexLogix Power Supplies

In a FlexLogix system, select an Allen-Bradley power supply. In applications that must be compliant with CSA requirements, use a Separated Extra-Low Voltage (SELV) power supply that is compliant with IEC 61010.1, Annex H.

When selecting power supplies, follow these guidelines.

- Provide power for the controller separately from the power for the FLEX I/O modules. To provide power for FLEX I/O modules, follow the guidelines in the documentation for those modules.
- When providing power for the 1794-FLA extended-local I/O adapter, treat the adapter as a communication adapter, not as an I/O module.

Select a FLEX Power Supply

The following power supplies are the Allen-Bradley offerings for the FlexLogix system.

Cat. No.	Input Voltage	Input Power	Apparent Input Power, Max.	Transformer Load, Max.	Output Current, Max.
1794-PS3	120V/220V ac	86 W	205 VA	250 VA	3.0 A
1794-PS13		36 W	53 VA	90 VA	1.3 A

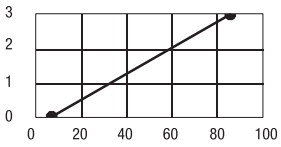
Certifications: UL, CSA (Class I, Division 2, Group A, B, C, D), CE.

Standard Power Load and Transformer Sizing

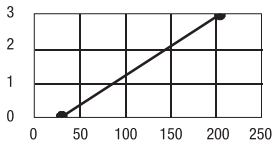
These graphs display backplane power load.

- Use the real power value in watts for determining the amount of heat dissipation you will have inside the enclosure.
- Use the apparent power value in VA for estimating power distribution sizing.
- Use the transformer load value in VA of each power supply plus all other loads on a transformer to determine the required transformer size.

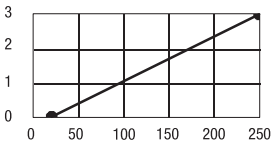
1794-PS3 ac/dc output current load



real power (Watts)

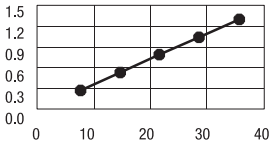


apparent power (Watts)

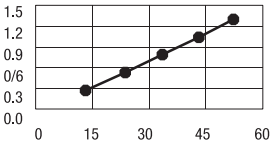


transformer load (VA)

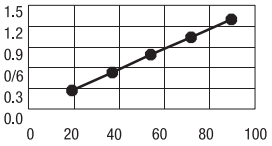
1794-PS13 ac/dc output current load (Amps)



real power (Watts)



apparent power (Watts)



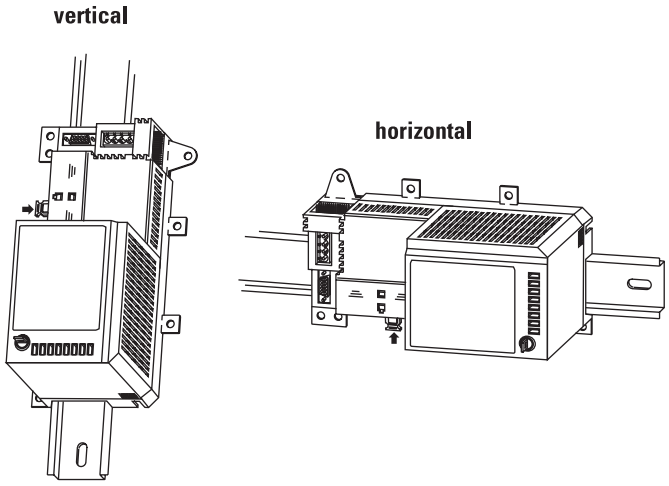
transformer load (VA) = real power (Watts) x 2.5

Step 5 - Select:

- *Based on the number of modules and the physical locations of those modules, determine the quantity and placement of the DIN rails*

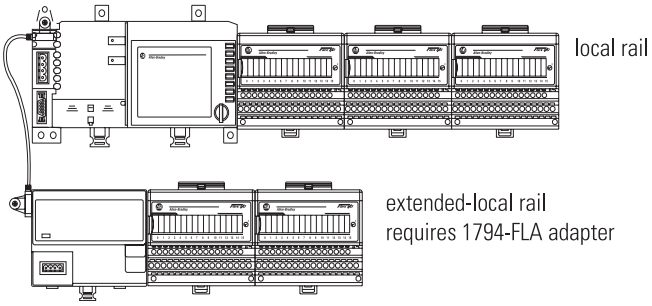
DIN Rails

You can horizontally or vertically mount the FlexLogix system on steel, 35 x 7.55 mm DIN rails (A-B part number 199-DR1; 46277-3; EN 50022). The DIN rails for all FlexLogix system components, including all local and extended-local I/O modules, must be mounted on a common, conductive surface to ensure proper electromagnetic interference (EMI) performance.



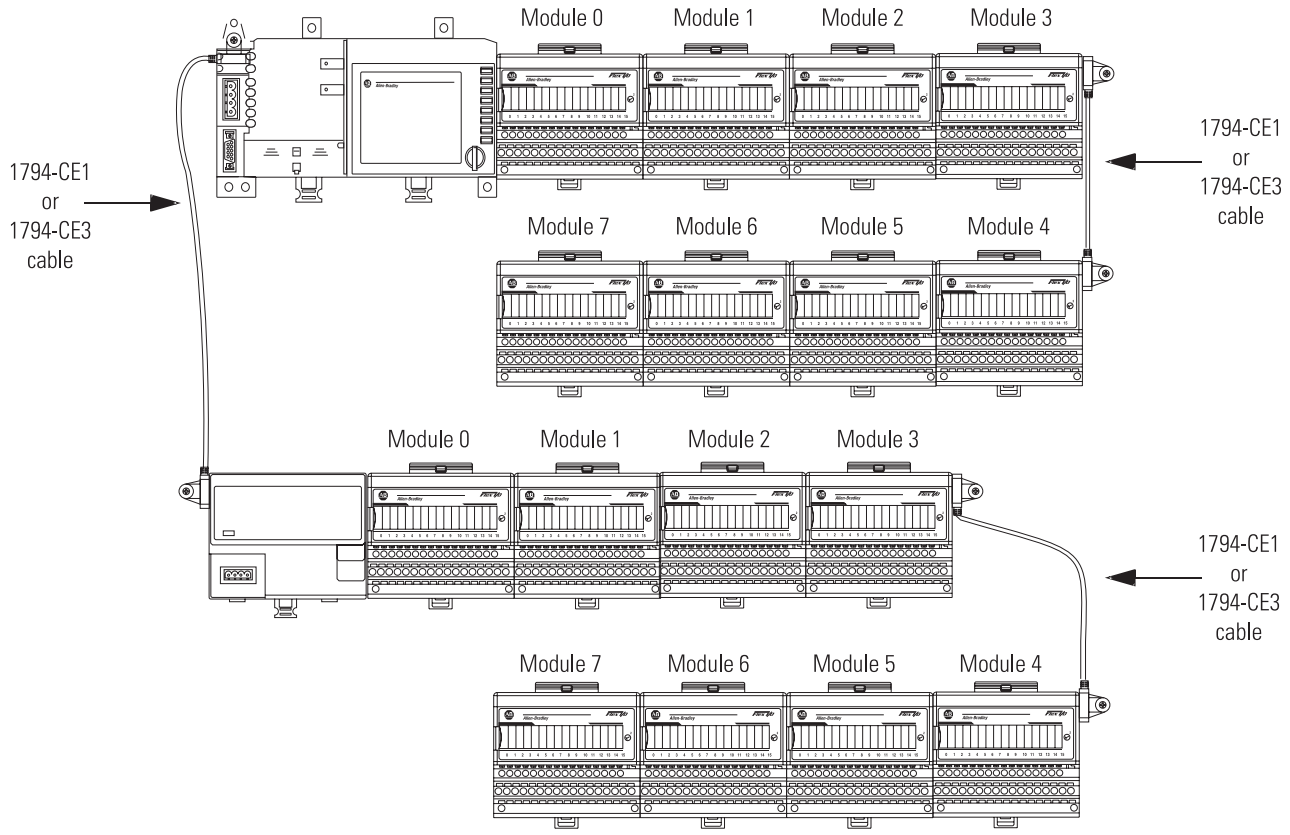
Extended-local Rail

Use the optional 1794-CE1 (0.3 m, 1 ft) or 1794-CE3 (0.9 m, 3 ft) extender cable to add an extended-local rail of I/O to the controller. You can have as many as eight I/O modules on the local rail and eight modules on the extended-local rail.



Multiple DIN Rails

Use the optional 1794-CE1 (0.3 m, 1 ft) or 1794-CE3 (0.9 m, 3 ft) extender cable to arrange your system in two rows or split your system into horizontal and vertical orientation. The cable can be used between any module or adapter.



Step 6 - Select:

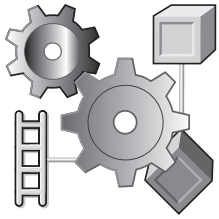
- *The appropriate package of RSLogix 5000 Enterprise Series software and any options*
- *Other software packages for your application*
- *An appropriate operator interface*

Software for a FlexLogix System

Your selection of modules and network configuration determines what software packages you need to configure and program your system.

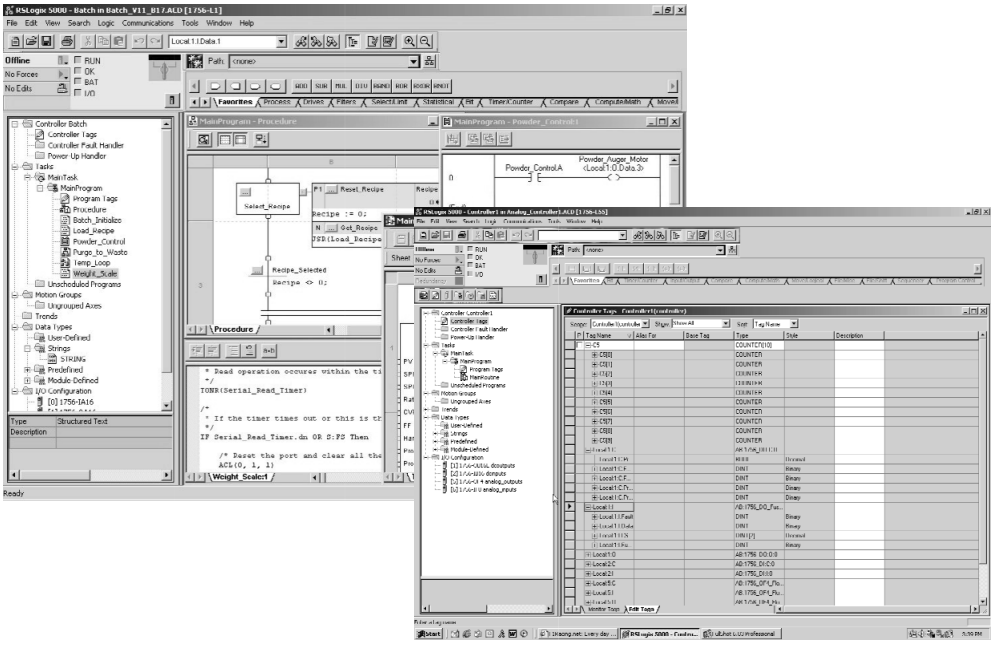
If you have a	You need	Order
1794 FlexLogix controller	RSLogix 5000 Enterprise Series software	9324 series (RSLogix 5000 Enterprise Series software)
1788-CN*x*, -CN*x*R ControlNet communication card	RSNetWorx for ControlNet (comes with the standard/NetWorx option of RSLogix 5000 Enterprise Series software)	9324-RLD300NXENE (RSLogix 5000 Enterprise Series software plus RSNetWorx option) **or** 9357-CNETL3 (RSNetWorx for ControlNet)
1788-DNBO DeviceNet communication card	RSNetWorx for DeviceNet (comes with the standard/NetWorx option of RSLogix 5000 Enterprise Series software)	9324-RLD300NXENE (RSLogix 5000 Enterprise Series software plus RSNetWorx option) **or** 9357-DNETL3 (RSNetWorx for DeviceNet)
1788-ENBT EtherNet/IP communication card (set the IP address)	RSLinx software (RSLinx Lite and Bootp server come with RSLogix 5000 Enterprise Series software) Scheduling software is not required for EtherNet/IP	9324 series (RSLogix 5000 Enterprise Series software)
Communication card in a workstation	RSLinx software (RSLinx Lite comes with RSLogix 5000 Enterprise Series software)	9324 series (RSLogix 5000 Enterprise Series software)
Logix-based system you want to emulate	RSLogix Emulate 5000	9310-WED200ENE

Programming Software



RSLogix 5000 Enterprise Series software is designed to work with Rockwell Automation's Logix platforms. RSLogix 5000 Enterprise Series software is an IEC 61131-3 compliant software package that offers relay ladder, structured text, function block diagram, and sequential function chart editors for you to develop application programs. Create your own instructions by encapsulating a section of logic in any programming language into an add-on instruction.

RSLogix 5000 Enterprise Series software also includes axis configuration and programming support for motion control. With RSLogix 5000 Enterprise Series software, you need only one software package for sequential, process, drive, motion control, and safety programming.



RSLogix 5000 Enterprise Series Software Requirements

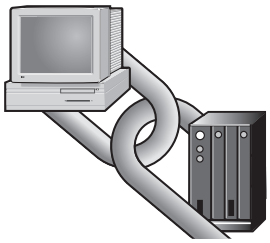
Description	Value
Personal computer	Pentium II 450 MHz min Pentium III 733 MHz (or better) recommended
Software requirements	Supported operating systems: • Microsoft Windows XP Professional version 2002 (with Service Pack 1 or 2) or XP Home version 2002 • Microsoft Windows 2000 Professional with Service Pack 1, 2, or 3 • Microsoft Windows Server 2003
RAM	128 MB of RAM min 256 MB of RAM recommended
Hard disk space	100 MB of free hard disk space (or more based on application requirements)
Video requirements	256-color VGA graphics adapter 800 x 600 min resolution (True Color 1024 x 768 recommended)

Select the RSLogix 5000 Enterprise Series Software Package

Available Features	Service Edition 9324-RLD000*xx*E✶♠	Mini Edition 9324-RLD200*xx*E✶	Lite Edition 9324-RLD250*xx*E✶	Standard Edition 9324-RLD300*xx*E✶	Standard/ NetWorx Edition 9324-RLD300NX*xx*E✶	Full Edition: Node Locked 9324-RLD600*xx*E Concurrent License 9324-RLD600*xx*F✶	Professional Edition 9324-RLD700NX*xx*E✶
Logix5000 controllers supported	All♠	CompactLogix FlexLogix	CompactLogix FlexLogix	All	All	All‡	All
Relay ladder diagram editor§	Upload/download and view	Full support	Full support	Full support	Full support	Full support	Full support
Function block diagram editor 9324-RLDFBDENE	Upload/download and view	Upload/download Available separately	Full support	Upload/download Available separately	Upload/download Available separately	Full support	Full support
Sequential function chart editor 9324-RLDSFCE	Upload/download and view	Upload/download Available separately	Full support	Upload/download Available separately	Upload/download Available separately	Full support	Full support
Structured text editor 9324-RLDSTXE	Upload/download and view	Upload/download Available separately	Full support	Upload/download Available separately	Upload/download Available separately	Full support	Full support
PhaseManager 9324-RLDPME	Upload/download	Upload/download Available separately	Upload/download Available separately	Upload/download Available separately	Upload/download Available separately	Included	Included
GuardLogix Safety 9324-RLDGLXE✦	Upload/download and view	NA	NA	Upload/download Available separately	Upload/download Available separately	Included	Included
Highly integrated motion	Upload/download and view	Upload/download	Full support	Full support	Full support	Full support	Full support
Graphical trending	Full support	Full support❖	Full support❖	Full support	Full support	Full support	Full support
DriveExecutive Lite 9303-4DTE01ENE	Available separately	Available separately	Available separately	Included	Included	Included	Included
PIDE autotune 9323-ATUNEENE	Available separately	Available separately	Available separately	Available separately	Available separately	Included	Included
RSMACC audit support	Included	Included	Included	Included	Included	Included	Included
FuzzyDesigner 9324-RLDFZYENE✦	NA	Available separately	Available separately	Available separately	Available separately	Available separately	Available separately
RSLogix Emulate 5000 9310-WED200ENE	Available separately	NA	NA	Available separately	Available separately	Available separately	Included
Logix CPU security	Included	Included	Included	Included	Included	Included	Included
Routine source protection	Included	Included	Included	Included	Included	Included	Included
RSMACC (security server) client	Included	Included	Included	Included	Included	Included	Included
Standalone security server	Included	Included	Included	Included	Included	Included	Included
RSLinx Classic software	Lite included	Lite included	Lite included	Lite included	Lite included	Lite included	OEM included✦
RSNetWorx for ControlNet software RSNetWorx for DeviceNet software RSNetWorx for EtherNet/IP software❄	Available separately	Available separately	Available separately	Available separately	Included	Available separately	Included
RSLogix Architect 9326-LGXARCHENE❖	Available separately	Available separately	Available separately	Available separately	Available separately	Available separately	Included
FBD ActiveX faceplates	Included	Included	Included	Included	Included	Included	Included
Tag data upload/download	Included	Included	Included	Included	Included	Included	Included
RSLogix 5000 project compare	Included	Included	Included	Included	Included	Included	Included
Tag custom data monitor	Included	Included	Included	Included	Included	Included	Included
RSView demo (50 tags/2 hours)	Available separately	Available separately	Available separately	Available separately	Available separately	Available separately	Included
Upgrades	To Standard: 9324-RLD0U3*xx*E To Full: 9324-RLD0U6*xx*E To Professional: 9324-RLD0U7*xx*E	To Standard: 9324-RLD2U3*xx*E To Professional: 9324-RLD2U7*xx*E	To Full: 9324-RLD25U6*xx*E To Professional: 9324-RLD25U7*xx*E	To Full: Multi-language pack⌘	NA	Node Locked to Concurrent License: 9324-RLD6U6F*xx*U To Professional: 9324-RLD6U7*xx*E	NA

✶Replace *xx* in the catalog number with the appropriate language designation: ZH=Chinese, EN=English, FR=French, DE=German, IT=Italian, JP=Japanese, KO=Korean, PT=Portuguese, and ES=Spanish.
♠Service Edition supports controllers running firmware revision 12 and later.
‡Full Edition supports controllers running firmware revision 10 and later.
§A multiple language editor package is available as 9324-RLDMLPE. It contains the function block, sequential function chart, and structured text editors at a reduced price.
❄RSNetWorx for ControlNet software is 9357-CNETL3. RSNetWorx for DeviceNet software is 9357-DNETL3. RSNetWorx for EtherNet/IP software is 9357-ENETL3. They are available together as 9357-ANETL3.
⌘The multiple language editor package (9324-RLDMLPE) is not the same as an upgrade, but it extends the programming languages to match those in a Full package.
❖As of RSLogix 5000 programming software, version 15.
✦As of RSLogix 5000 programming software, version 16.

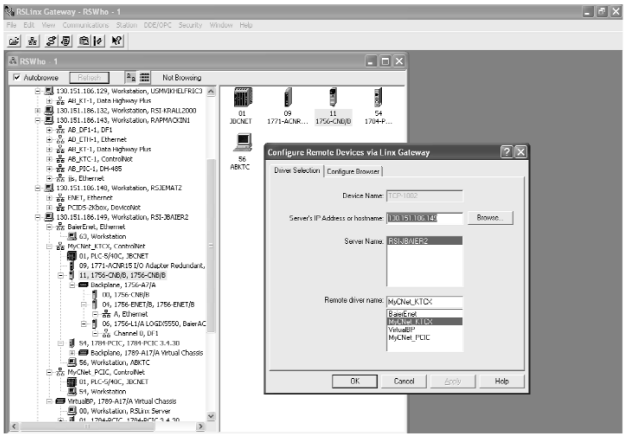
RSLinx Software



RSLinx software is a complete communication server providing plant-floor device connectivity for a wide variety of software applications such as RSLogix 5, RSLogix 500, and RSLogix 5000, RSView32, RSView Enterprise Series, and RSSql/RSBizWare software. In addition, several open interfaces are provided for third-party HMI, data collection and analysis packages, and custom client-application software. RSLinx software can support multiple software applications simultaneously, communicating to a variety of devices on many different networks.

RSLinx software, version 2.*x*, is now joined by RSLinx Enterprise software, a new product within the RSLinx family that provides unparalleled connectivity to Logix processors. RSLinx Enterprise software currently can support working as a data server for widely distributed RSView Supervisory Edition products, RSSql, RSBizWare Historian, and RSBizWare PlantMetrics applications, RSView Machine Edition software iincluding PanelView Plus and VersaView hardware platforms, and RSView Supervisory Edition Station software.

You can communicate from anywhere to anywhere using RSLinx software.



RSLinx Software Requirements

Description	Description
Personal computer	Pentium100 MHz processor (faster processors will improve performance)
Operating system	Supported operating systems: • Microsoft Windows XP • Microsoft Windows 2000 • Microsoft Windows NT version 4.0 with Service Pack 3 or greater • Microsoft Windows ME • Microsoft Windows 98
RAM	32 MB of RAM min 64 MB or more of RAM recommended
Hard disk space	35 Mbytes of free hard disk space (or more based on application requirements)
Video requirements	16-color VGA graphics display 800 x 600 or greater resolution

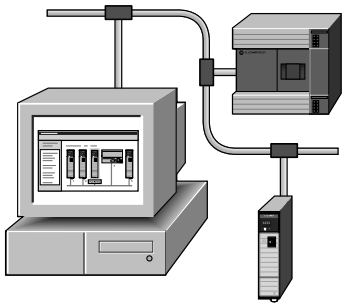
In most cases, RSLinx Lite software comes bundled with controller programming software packages.

You can also download RSLinx Lite for free from the Software Updates link on the Get Support Now website at http://suport.rockwellautomation.com

Select the RSLinx Software Package

Cat. No.	RSLinx Products
Available only bundled with other products such as RSLogix software products.	RSLinx Lite
9355-WABSNENE	RSLinx Single Node
9355-WABOEMENE	RSLinx OEM
9355-WABENE	RSLinx Professional
9355-WABGWENE	RSLinx Gateway
9355-WABCENE	RSLinx SDK
9355-RSLETENE	RSLinx Enterprise

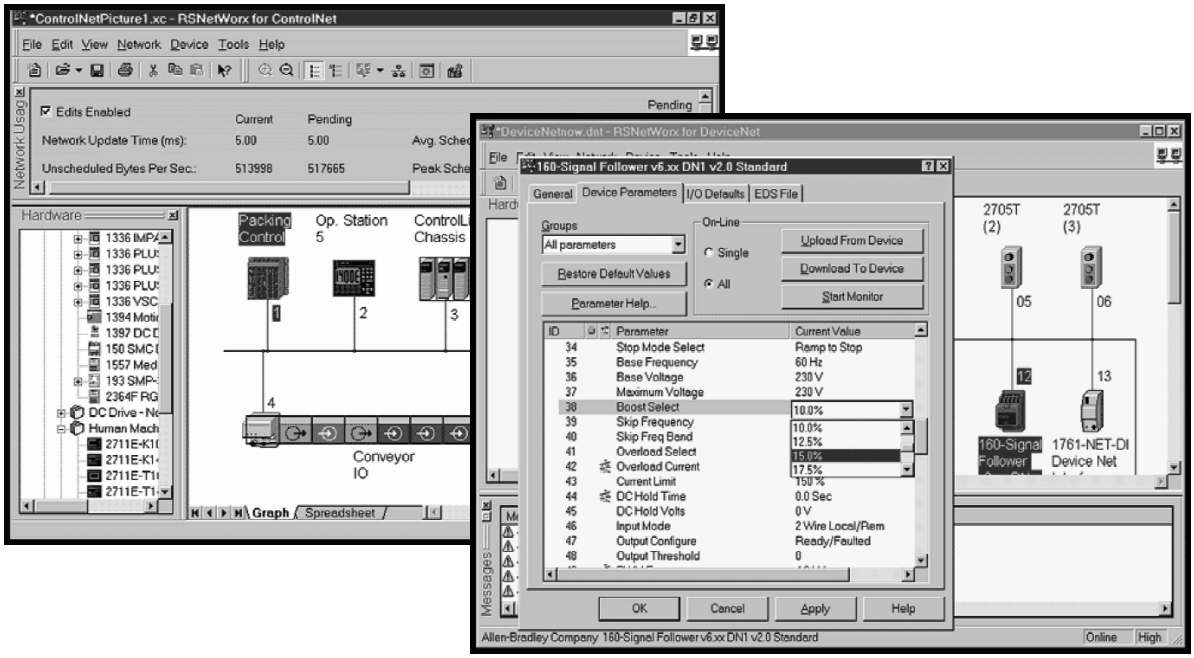
Network Configuration Software



RSNetWorx software is the configuration tool for your control network. With RSNetWorx software you can create a graphical representation of your network configuration and configure the parameters that define your network.

Use RSNetWorx software for:

- ControlNet software to schedule network components. The software automatically calculates network bandwidth for the entire network, as well as the bandwidth used by each network component. You must have RSNetWorx software to configure and schedule ControlNet networks.
- DeviceNet software to configure DeviceNet I/O devices and create a scan list. The DeviceNet scanner stores the configuration information and scan list.
- EtherNet/IP software to configure EtherNet/IP devices using IP addresses or host names.



RSNetWorx Software Requirements

Description	EtherNet/IP	ControlNet	DeviceNet
Personal computer	Intel Pentium or Pentium-compatible computer		
Operating system	Supported operating systems: • Microsoft Windows XP • Microsoft Windows 2000 • Microsoft Windows 2000 Terminal Server • Microsoft Windows NT version 4.0 with Service Pack 6 or later • Microsoft Windows ME • Microsoft Windows 98		
RAM	32 MB of RAM min More memory is required for large networks		
Hard disk space	Minimum: 108 MB (includes program and hardware files) Full support: 115...125 MB (includes program, online help, tutorial, and hardware files)	Minimum: 115 MB (includes program and hardware files) Full support: 168...193 MB (includes program, online help, tutorial, and hardware files)	Minimum: 190 MB (includes program and hardware files) Full support: 230...565 MB (includes program, online help, tutorial, and hardware files)
Video requirements	16-color VGA graphics adapter 640 x 480 resolution minimum 800 x 600 resolution recommended		
Other	RSLinx Lite software, version 2.41 or later, to use RSNetWorx software online	RSLinx Lite software, version 2.4 or later, to use RSNetWorx software online	RSLinx Lite software, version 2.4 or later, to use RSNetWorx software online

In some cases, RSNetWorx software comes bundled with controller programming software packages.

Select the RSNetWorx Software Package

Cat. No.	Description
9357-CNETL3	RSNetWorx for ControlNet software
9357-DNETL3	RSNetWorx for DeviceNet software
9357-ENETL3	RSNetWorx for Ethernet/IP software
9357-ANETL3	RSNetWorx for ControlNet, Ethernet/IP and DeviceNet software
9357-CNETMD3E	RSNetWorx for ControlNet software with MD, includes DriveExecutive Lite software
9357-DNETMD3E	RSNetWorx for DeviceNet software with MD
9357-ENETMD3E	RSNetWorx for EtherNet/IP software with MD
9357-ANETMD3E	RSNetWorx for ControlNet, DeviceNet, and Ethernet/IP software with MD

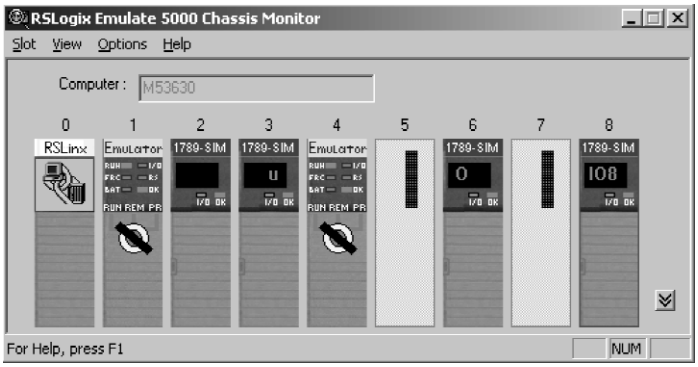
RSLogix Emulate 5000 Software

RSLogix Emulate 5000 software (9310-WED200ENE) is the emulation package for the Logix5000 controllers. RSLogix Emulate 5000 software, used in conjunction with RSLogix 5000 software, lets you run and debug your application code while at your computer. In addition, RSLogix Emulate 5000 software lets you test HMI screens, developed in RSView software for example, without the need to connect to a real controller.

You can set tracepoint and breakpoint instructions (ladder diagram only) in your application code, use traces, and also vary the execution speed of the emulator. RSLogix Emulate 5000 software supports all the programming languages (ladder diagram, function block diagram, structured text, and sequential function chart). RSLogix Emulate 5000 software does not allow for control of real I/O.

Use RSLogix Emulate software for:

- troubleshooting.
  Stop the process whenever a selected rung goes true, effectively freezing the process at the instant that any error occurs.
- ladder logic scanning options.
  Scan your ladder logic continuously, one program scan at a time, rung-by-rung, or select a specific block of rungs to emulate. Selecting a block of rungs lets you isolate a particular section of the program for testing purposes. You can also set trace points to trace application program tags and set break points to halt program execution at predetermined locations.



RSLogix Emulate 5000 Requirements

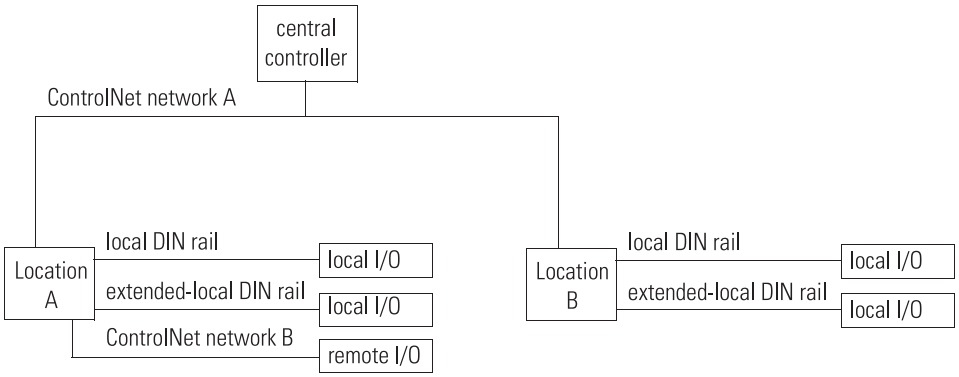
Description	Description
Personal computer	IBM-compatible Intel Pentium II 300 MHz or Celeron 300A (Pentium III 600 MHz recommended)
Operating system	Supported operating systems: • Microsoft Windows XP with Service Pack 1or later • Microsoft Windows 2000 with Service Pack 2 or later • Microsoft Windows NT version 4.0 with Service Pack 6A or later
RAM	128 MB of RAM min
Hard disk space	50 MB of free hard disk space
Video requirements	16-color VGA graphics display 800 x 600 or greater resolution

RSLogix Emulate 5000 software includes RSTestStand Lite software. RSTestStand Lite software lets you create virtual operator consoles that can help test your application code. RSTestStand Lite software can be upgraded to the standard version by ordering catalog number 9310-TSTNDENE.

RSLogix Emulate 5000 and RSTestStand Lite software are included with RSLogix 5000 Professional software.

Summary

Use a spreadsheet to record the amount and type of devices your FlexLogix system needs. For example, the requirements for Location A in this sample system...



...could result in this spreadsheet.

Device	Location	Number of Points Needed	Cat. No.	I/O Points per Module	Number of Modules
120V ac digital inputs	A	48	1794-IA8	8	6
120V ac digital outputs	A	25	1794-OA8	8	4
24V dc digital inputs	A	43	1794-IB16	16	3
24V dc digital outputs	A	15	1794-OB16	16	1
contact digital outputs	A	5	1794-OW8	8	1
4-20mA analog inputs	A	6	1794-IF4I	4	2
0-10V dc analog inputs	A	2	1794-IF4I	4	0 (can use remaining points on above module)
4-20mA analog outputs	A	4	1794-OF4I	4	1
FlexLogix extended-local adapter	A	na	1794-FLA	na	1
ControlNet communication card	A	na	1788-CNC	na	2
Location A subtotal					21

System Components

As you select devices for your FlexLogix system, keep these guidelines in mind.

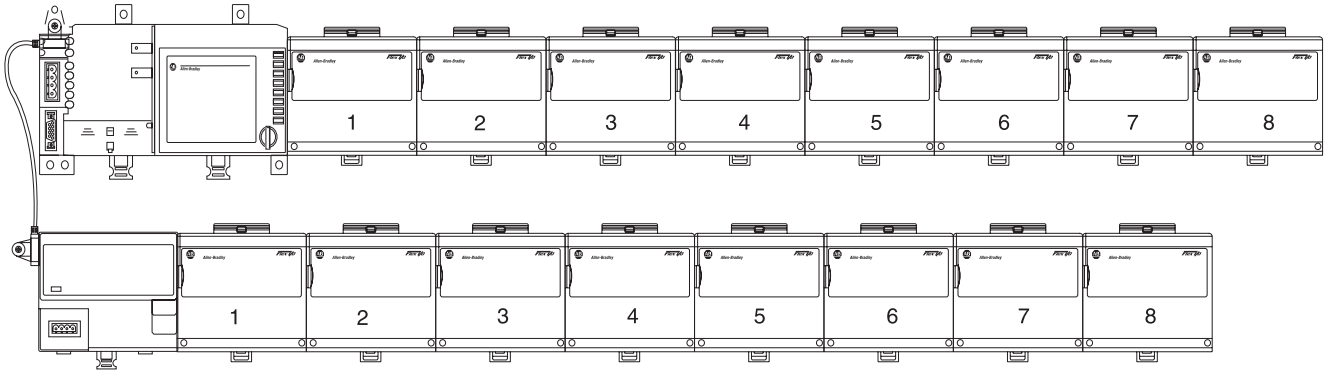
✓	Step		Select
	1	**Select I/O devices.**	• I/O modules • Terminal bases for FLEX and FLEX Ex I/O modules • Extender cables • 1794-FLA adapter for an extended-local rail, if needed • 1797-BIC and 1797-CEC if using FLEX Ex I/O modules
	2	**Select communication cards.**	• Networks • Communication cards (2 maximum per controller) • Associated cable(s) and network equipment
	3	**Select controllers.**	• A controller with sufficient memory • Replacement batteries - the controller comes with one 1756-BA1 battery
	4	**Select power supplies.**	• A power supply with sufficient power for the modules you need, with room to spare for additional growth • In applications that must be comply CSA requirements, use a Separated Extra-Low Voltage (SELV) power supply that is compliant with IEC 61010.1, Annex H
	5	**Determine the number of DIN rails.**	• Depending on the number of modules, determine the quantity and placement of DIN rails • Use steel, 35 x 7.55mm DIN rails (A-B part number 199-DR1; 46277-3; EN 50022)
	6	**Select software**.	• The appropriate package of RSLogix 5000 Enterprise Series software and any options

As you determine placement of the modules you selected, use the worksheet on the inside of the back cover to record your choices. Make a copy of this worksheet for each controller.

Notes

Notes

FlexLogix System Worksheet



Local rail:	I/O module catalog number:	FlexBus current:	Module power (watts):
1			
2			
3			
4			
5			
6			
7			
8			
	totals:		

Extended-local rail:	I/O module catalog number:	FlexBus current:	Module power (watts):
1			
2			
3			
4			
5			
6			
7			
8			
	totals:		

Use the total FLEXBus current to ensure a given system is within the maximum limits. The FLEXBus currents for Rockwell Automation FLEX modules are listed in the module specifications through this document. Use the total module power to determine enclosure requirements.

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